FHWA Midwest Chicago Megaregion Workshop

August 28-29, 2017
Chicago, IL

Final Report—December 2017

U.S. Department of Transportation
Federal Highway Administration

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This report reviews and highlights key content and outcomes identified at the Midwest Chicago Megaregion Workshop held on August 28-29, 2017 in Chicago, Illinois. The event was sponsored by the Federal Highway Administration's (FHWA) Office of Planning, Environment, & Realty (HEP) to examine shared regional issues of mutual concern to FHWA and transportation stakeholders in the Midwest Chicago Megaregion.

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INTRODUCTION

On August 28-29, 2017, the Federal Highway Administration (FHWA) convened a Midwest Chicago Megaregion Workshop titled "Planning and Addressing Freight at the Megaregion Level." The Workshop brought together public and private sector decision makers to discuss how they can better connect and work together to address multimodal freight transportation on a megaregion scale in the Midwest.

During the Workshop, transportation officials and planning representatives from seven neighboring states explored ongoing research and collaboration, best practices, and opportunities to coordinate on topics such as goods movement and economic development from a megaregional perspective. Topics included ports, logistics parks, state and regional uniform truck permitting, truck parking needs, freight and rail planning activities and challenges, and private sector perspectives on freight and economic development. Concluding the Workshop, participants discussed priority needs and potential collaboration steps for the future.

For the purposes of this Workshop, FHWA defines the Midwest Chicago Megaregion as comprised of Iowa, Illinois, Indiana, Michigan, Minnesota, Missouri, and Wisconsin, as shown in the map in Figure 1. Additional information about megaregions is available on FHWA's Megaregion Web site.

Figure 1. Map. Midwest Chicago Megaregion.
(Source: Cambridge Systematics, Inc.)

BACKGROUND

Throughout 2016 and 2017, FHWA launched a series of Megaregion workshops and peer exchanges conducted in select areas throughout the nation to identify how FHWA, State Departments of Transportation (DOT), Metropolitan Planning Organizations (MPO), and the private sector can enhance coordination and collaboration to address transportation needs on a megaregional scale. The Midwest Chicago Megaregion Workshop is part of this series of events. Prior FHWA events during 2016 and 2017 were held in Phoenix, AZ; Philadelphia, PA; Memphis, TN; Atlanta, GA; and Providence, RI.

Over the course of several months leading up to this Workshop, FHWA Office of Planning staff worked closely with FHWA staff in the seven Division offices within the Megaregion to plan the Workshop. This included identifying and prioritizing Workshop topics tailored to the Midwest Chicago Megaregion, developing a Workshop agenda, and identifying speakers and participants. The event took place over a period of 1.5 days, and featured a welcome session with remarks from "local" hosts – the FHWA Illinois Division, Illinois Department of Transportation (IDOT), and the Chicago Metropolitan Agency for Planning (CMAP). This was followed by several sessions involving presentations from numerous state, local, MPO, and private sector representatives, discussion of key issues raised in each session, and breakout sessions on select topics, facilitated by FHWA Office of Planning staff.

This document reports on the Workshop, including the presentation topics, ensuing discussions, and next steps identified by meeting participants. Appendix A presents the Workshop agenda; Appendix B contains the Midwest Chicago White Paper; Appendix C lists key FHWA contacts; and Appendix D contains a list of Workshop participants.

DAY 1: PART 1 – SETTING THE STAGE

WELCOME AND INTRODUCTIONS

Kay Batey, Division Administrator, Illinois Division, FHWA

Ms. Batey opened the meeting with a warm welcome to all attendees. She provided an overview of the workshop planning efforts conducted by FHWA and emphasized that the most important element of the event is sharing of information among attendees. She encouraged active participation throughout the Workshop. Kay introduced the next two speakers – Illinois Department of Transportation (IDOT) Secretary Randy Blankenhorn and Chicago Metropolitan Agency for Planning (CMAP) Executive Director Joe Szabo.

Randy Blankenhorn, Secretary, Illinois Department of Transportation

Secretary Blankenhorn welcomed the participants to Illinois, and strongly affirmed the intent of the Workshop. He stated that freight and economic development do not stop at state lines and encouraged states to increase coordination and collaboration. He also affirmed to state attendees that addressing freight and economic development issues is not something that can be done by individual states. The Mid America Association of State Transportation Officials (MAASTO) held a freight summit in April 2017; MAASTO brought in the private sector to talk with the states about industry freight needs. The key message during the freight summit was that states need to work together to prioritize projects. Funding is limited and states cannot address transportation problems on their own. The Chicago Region Environmental and Transportation Efficiency Program (CREATE) program is an example of this approach. CREATE is a partnership between the public and private sectors to direct billions of dollars towards critically needed improvements to increase the efficiency of the region's passenger and freight rail infrastructure.

Secretary Blankenhorn concluded by emphasizing that it is important for states to understand that "What is good for our neighbors is also good for us." In many instances, states will benefit from the planning efforts of their neighbors. In addition, he mentioned that Federal funding programs are not designed in a way that encourages states and other peers to think about megaregional coordination and collaboration. However, that can be changed by continued discussion and working together across boundaries.

Joe Szabo, Executive Director, Chicago Metropolitan Agency for Planning

Mr. Szabo welcomed the participants to Chicago and expressed his appreciation to FHWA for hosting the event and to the attendees for their involvement. Freight has had a seat at the table in Chicago since the 1960's due to its prominence in the region, and is actively engaged to this day. He provided background on some of the key freight activities at CMAP, including the identification of bottlenecks; specifically, the 75th Street Corridor, which is the worst chokepoint for rail movement in the city. Before coming to CMAP, Mr. Szabo was Administrator of the Federal Railroad Administration (FRA) so he brings the local and Federal perspectives. He echoed

Secretary Blankenhorn's statement that we need to work across boundaries to address freight, and added that freight is bigger than any one region or state.

Q&A/Dialogue

Question: Can you elaborate on why the current Federal programs make it so difficult to think on a megaregional basis.

Answer by Secretary Blankenhorn: Funding goes to each state. Discretionary programs like Transportation Investment Generating Economic Recovery (TIGER), and Infrastructure for Rebuilding America (INFRA) are designed in part to address this but they are not doing the job. The question that remains is, how do we focus Federal programs so they provide incentives to think megaregionally? There should be a national pot of money for national needs and this pot should not be allocated among megaregions. The best projects nationally will rise to the top.

Answer by Mr. Szabo: The current program is focused on modes so we need an increased degree of coordination between modal agencies and departments. States and MPOs are able to flex money, but the needs across all modes are so great that flexing is not a workable solution. To encourage megaregional thinking we need good policy and more funding.

STARTING THE CONVERSATION: PLANNING AND ADDRESSING FREIGHT AT THE MEGAREGION LEVEL IN THE MIDWEST

This session provided an overview of Workshop goals and set the stage for the remainder of the event.

James Garland, Team Leader, Transportation Planning Capacity Building, FHWA

The Workshop's purpose is to:

- Connect and collaborate across public and private sectors;
- Discuss common transportation, economic and livability issues and opportunities in the Midwest Chicago Megaregion; and
- Identify steps to implement megaregion planning.

Several methods exist for characterizing and defining megaregions. Megaregional planning provides an approach to address emerging challenges that go beyond traditional borders. Some of the benefits of a megaregional approach include enhancing economic development across jurisdictional boundaries, sharing best practices, promoting the collection, sharing, and use of data and information, and addressing projects or services that enhance the mobility of people and goods across a broad area.

The Midwest Chicago Megaregion white paper, which was provided to attendees prior to the Workshop, describes the Megaregion in terms of its key characteristics and highlights transportation challenges and opportunities. The Midwest Megaregion is one of the largest by population and geography. It has a high density of development patterns and economic activities, with numerous multimodal connections between population centers within the Megaregion. The Megaregion faces some challenges however, including high repair and maintenance needs, management of assets, capacity constraints, governance, and sustainability. Opportunities

include new technologies such as ITS, passenger rail upgrades, creation of multimodal freight terminals, and redevelopment of industrial bases.

STATE DOT PERSPECTIVES ON FREIGHT, ECONOMIC DEVELOPMENT, AND MEGAREGIONAL COORDINATION

In this session, a member of each state DOT highlighted information about freight and economic development activities in their state, status of freight plans, coordination efforts within their state and across MPOs, freight priorities and challenges, and other information each felt was important to discuss. The session was facilitated by Brandon Buckner, FHWA Office of Planning. The comments made by each state DOT speaker are summarized below, followed by the summary of the Q&A session.

Illinois Department of Transportation (IDOT)

Erin Aleman, Director of Planning & Programming, reported that IDOT is working hard to identify priorities. The private sector panel at the MAASTO freight summit was very important in providing a forum of discussion. During the summit, the private sector identified key issues, including variation in regulations and permitting requirements across state lines, sharing data, and the importance of a transparent project selection process. For the state freight plan, IDOT engaged the Freight Advisory Committee (FAC) and MPOs in the process, as well as industry groups such as the Illinois Soybean Association. In Illinois, ports are an important issue, but the state does not have a dedicated port revenue stream.

Iowa Department of Transportation (Iowa DOT)

Craig Markley, Director, Office of System Planning, agreed with Secretary Blankenhorn's opening comments. Iowa received a FASTLANE grant award in 2016 to construct an intermodal transportation facility, which is estimated to begin soon. Iowa has used tax incentives to attract businesses to the state and Mr. Markley highlighted that a good transportation system is necessary to keep them there. Iowa's freight plan is now compliant with the Fixing America's Surface Transportation (FAST) Act. The state is researching the possible impacts on shipping if 3D printing continues to grow. An important megaregion issue for Iowa is waterway transportation. As a result, the state is using 10% of its National Highway Freight Program (NHFP) funds for inland waterway system improvements.

Indiana Department of Transportation (INDOT)

Kristin Brier, Freight Manager, also agreed with Secretary Blankenhorn on the importance of a megaregional approach to transportation. The Indiana freight plan is currently under development. Freight related challenges in the state include congestion and capacity; Indiana has three of the top 100 freight bottlenecks, all in the Indianapolis region. INDOT is actively engaged with the Mid America Freight Coalition (MAFC) and is developing "intermodal thinking." A challenge to intermodal thinking in Indiana is that INDOT does not have authority over ports, making coordination more difficult.

Michigan Department of Transportation (MDOT)

Tim Hoeffner, Director, Office of Rail, mentioned that when looking at megaregions, we can't stop at the US border and should collaborate with our Canadian partners, for example. Michigan works with the Council of Great Lakes Region, an organization that provides a forum and voice for promoting shared interests, including transportation, among organizations around the Great Lakes. Michigan's state freight plan is drafted and out for public comment. The locks on the Megaregion's waterways are key to commerce, especially steel shipments, and they need attention. Cross-border traffic with Canada is very important to Michigan; the manufacturing industry relies heavily on transportation systems. Michigan hosted a Midwest conference on rail, with participation from other states in the Megaregion. The state is working closely with partners in neighboring states on connected and autonomous vehicles via the testing facility at University of Michigan.

Minnesota Department of Transportation (MNDOT)

Bill Gardner, Director of Freight & Commercial Vehicle Operations, reported for MNDOT. Several major events will take place in the state of Minnesota, including the Super Bowl in 2018 and the NCAA Final Four tournament in 2019. Minnesota is also a finalist for the 2023 World's Fair. These major events will require coordination and transportation system upgrades. The state freight plan, which was recently completed, identifies three focus areas – safety, mobility, and first-mile last-mile connections. Minnesota is currently developing a freight investment plan in which the state conducted a project call/request for projects. MNDOT is actively engaged in a number of collaborative efforts, including MAFC and the Great Lakes Governor's Maritime Task Force. A lot of good work is being done and MNDOT needs to develop a way to tie it all together. Aging infrastructure, ports, rail, and truck parking are important issues in the state. Within the state, MNDOT is engaged in a rail council and an interagency commercial vehicle coordination group.

Missouri Department of Transportation (MoDOT)

Michael DeMers, Innovative Funding Director, reported that MoDOT is currently working on the state freight plan and reconvening the Freight Advisory Committee (FAC). Freight is strongly tied to economic development and should be part of the multimodal discussion. MoDOT has a Freight Enhancement Program that provides funding to public, private, and non-profit entities for capital projects other than highways. MoDOT is using a data analytics platform to inform development of the Department's transportation policies.

Wisconsin Department of Transportation (WisDOT)

Donna Brown-Martin, Director of Planning, reported for WisDOT. Wisconsin holds a Governor's Freight Summit annually. WisDOT set up a FAC for the state multimodal freight plan and is engaging members in the planning process. The main issues are project prioritization and utilizing Federal funds across modes. They are also focusing on first-mile last-mile connectors. Wisconsin is also addressing the state's role in waterways and how to best utilize available funding.

Q&A/Dialogue

Question for panel: Do any of the states coordinate with each other when developing plans?

Answer from Mr. Hoeffner, MDOT: This is an area in which they need to do a better job. Michigan is coordinating with Ohio along the Interstate 94 corridor. They are also doing an exceptional job on intercity passenger rail, as evidenced by locomotives that are functionally owned among states. But overall, they need to spend more time on this and take it to the next level. Tim remarked that "you don't want to begin exchanging business cards during a crisis."

Answer from Mr. Markley, Iowa DOT: The states need to look at governance structures, such as contributing agreements. There is an agreement among nine states on intercity rail, which has helped the states take action.

Answer from Mr. Gardener, MNDOT: Governance structures are important; it is very difficult to keep coordination going without dedicated staff and a commitment.

Answer from Ms. Brown-Martin, WisDOT: The states may already have what they need to start coordinating by sharing their freight plans.

TRANSPORTATION AND ECONOMIC DEVELOPMENT EFFORTS IN THE MIDWEST

In this session, two speakers discussed initiatives related to transportation, freight, and economic development that have benefits across the Megaregion.

Ron Chicka, Executive Director, Duluth-Superior Metropolitan Interstate Council (MIC)

The MIC is the designated MPO for the Duluth-Superior region, which is home to the Duluth-Superior Port. The port is the largest Great Lakes port by tonnage, with 35 million tons of cargo annually and 1000 vessel visits per year. The MIC formed a Harbor Technical Advisory Committee (HTAC) that is comprised of members from local, state, and Federal governments, natural resources stakeholders, and port operators. HTAC promotes the harbor's economic and environmental importance to the region, and serves as a model for stakeholder collaboration to address port- and harbor-related issues. Some of the key issues addressed through the HTAC include land use and zoning, economic development, port security, interagency coordination, and stakeholder participation.

The HTAC is a diverse working group that addresses issues such as waterfront development proposals, port security updates, and environmental remediation and restoration initiatives. Key HTAC accomplishments include a dredged material management plan and a port land use plan, which has enhanced interagency coordination, helped to leverage multiple funding sources, and encourage public-private partnership. A future land use map was developed as part of the port land use plan and serves as a guide for Duluth and Superior to incorporate into their comprehensive plans. The HTAC adds value by providing this collaborative forum to address port issues and networking and collaboration opportunities between agencies and the private sector. Participation by the private sector has been key to addressing issues and achieving results.

John Grueling, President and CEO, Will County (IL) Center for Economic Development

The CenterPoint Intermodal Center (CIC) in Joliet/Elwood, Illinois is the largest master-planned inland port in North America. Located 40 miles southwest of Chicago, Joliet/Elwood is strategically positioned at the center of major transportation infrastructure.

Will County is the center of economic development for the Megaregion. While there is now a massive amount of logistics activity, there was no intermodal facility just 15 years ago. The explosive growth has been disruptive to the community. Will County developed a Community Friendly Freight Mobility Plan to be used by impacted communities. The freight mobility plan includes, but is not limited to: best development practices to manage the growth of industry; freight transportation projects that improve highway safety and bottleneck problems; key workforce issues facing companies in this sector in Will County; and the current state of freight movement in the county today on all transportation modes. The CIC is the port for Will County, but it is also the port for the entire Megaregion.

Q&A/Dialogue

Question for Mr. Grueling: This is an amazing amount of private development. Has any of the transportation infrastructure been supported by industry?

Answer from Mr. Grueling: The private sector is contributing to the cost of infrastructure. IDOT has provided $20 million in seed money for improvements. Access to the intermodal facility is also being tolled.

DAY 2: PART 2 – CURRENT AND NEAR-TERM MEGAREGIONAL INITIATIVES

RECAP AND OVERVIEW

Mr. Garland summarized the Day 1 Workshop discussion. The overriding message was that the states and organizations in the Midwest Chicago megaregion would benefit from working together to coordinate planning and transportation priorities. Secretary Blankenhorn stated that the Federal program is not set up to encourage this type of thinking, but we must work harder at it, and many speakers agreed with this. The “Four C’s” of megaregional planning (Coordination, Communication, Consultation, and Commitment) are each important for a megaregion to succeed. The effort should start with a conversation.

ADDRESSING UNIFORM PERMITTING AND TRUCK PARKING TO AIM FOR SEAMLESS TRAVEL ACROSS THE MIDWEST MEGAREGION

This section focused on initiatives to improve truck travel through jurisdictions in the Midwest Chicago Megaregion by addressing truck parking needs and harmonizing truck permitting requirements.

Mary Forlenza, Transportation Planner, Wisconsin Division, FHWA

Demand for truck parking frequently surpasses supply along corridors in the Megaregion, which interferes with drivers taking mandatory rest or encourages them to stop in undesignated parking areas. Parking is supplied by a combination of public sources such as rest areas and private

sources such as commercial truck stops. The region is attempting to lessen the truck parking shortage. A multi-state collaboration among Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Ohio, and Wisconsin received a $25 million TIGER grant in 2015 to develop a real-time truck parking information. This Truck Parking Information and Management System (TPIMS) project will reduce the time commercial truck drivers spend searching for parking along major freight corridors and will allow drivers to monitor parking availability and make decisions as they approach their federally mandated hours of service limits.

The states in the Megaregion were well equipped to apply for this award. They have been working together to a certain degree over several years prior to submitting the TIGER application. TPIMS will align with the ITS architecture that is already in place. The states will use the Interstate 94 corridor for testing and the project will go live in January 2019.

Nick Vlahos, Principal, Cambridge Systematics

Harmonization of truck permitting requirements across jurisdictions is an important issue in the Midwest Megaregion, as well as nationally, but it is also complex. Federal truck size and weight laws are very much a state issue, which further devolves to local and regional levels. Shippers need a permit for each state they operate in as well as for localities at first mile and last mile connections. This means that governments are involved in the supply chain, whether they like it or not. Every time there is a difference in requirements, there is friction in the supply chain. There have been calls to establish a Federal requirement to harmonize requirements across all states. However, this is unrealistic because every state has its own needs.

Harmonization means agreeing on minimum requirements for each state or jurisdiction. This is a complex issue. An American Association of State Highway and Transportation Officials (AASHTO) committee has been working on this issue for several years and has made some headway. The AASHTO process is a good example of the 4 C's of megaregional planning that was previously discussed (Coordination, Communication, Consultation, and Commitment). It is not impossible to achieve a level of collaboration among states on this issue; it can be done. It takes a lot of work, but there is common ground.

Alex Beata, Senior Policy Analyst, Chicago Metropolitan Agency for Planning (CMAP)

In 2013, seven counties and the City of Chicago convened to examine opportunities to collaborate around economic growth initiatives. One of the key issues that emerged from this meeting was the lack of a centralized and uniform system for overweight/oversized (OW/OS) truck permits. The CMAP region has 284 municipalities across several counties. This leads to inconsistent regulations for OW/OS trucks. Fragmentation of permit requirements among these jurisdictions leads to a lack of compliance, increased enforcement costs for regulators, and a burden on shippers. Stakeholders identified this topic as an opportunity for regional collaboration, and CMAP undertook a study and development of a regional permitting plan to harmonize truck permit requirements throughout jurisdictions in the CMAP planning area.

One of the key findings of the study is that it is often difficult to identify and talk to the person in charge of permits in some municipalities. CMAP developed a model ordinance municipalities can adopt. While conducting the study and developing the model ordinance it became clear that one size does not fit all; municipalities have different needs and requirements. Sitting down with the private sector to understand their needs is also critical. This effort, although regional, serves as a good case study for demonstrating the challenges of governance at the megaregion level.

Q&A/Dialogue

Question for panel: Will industry be more drawn to locate or expand in a state or region that harmonizes truck requirements?

Answer from Mr. Vlahos: States recognize this as a factor in initiatives to foster economic development and draw jobs, but the evidence to suggest that it's a major factor is limited. It would be difficult to quantify the benefits. At the local level, many municipalities do not even recognize that their permitting processes cause issues.

Answer from Mr. Beata: We need to make municipalities aware of this issue. Even after doing a lot of outreach when conducting the CMAP study, there is still a need to raise awareness at the local level.

MEGAREGIONAL COLLABORATION IN THE MIDWEST

This session featured two collaboration efforts in the Midwest Chicago Megaregion – the Mid-America Freight Coalition and Conexus Indiana.

Bill Gardner, Freight Planning Director, MnDOT

The Mid-America Freight Coalition (MAFC) is an excellent fit for megaregional transportation planning and collaboration in the Midwest. MAFC is involved in the planning, operation, preservation, and improvement of transportation infrastructure in 10 Midwest states (Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Ohio, and Wisconsin) that share key interstate corridors, inland waterways, and the Great Lakes. The MAFC states comprise 22 percent of the U.S. population, 23 percent of total U.S. truck tonnage, and 63 percent of total U.S. rail tonnage.

The ten MAFC states signed an MOU in 2006, demonstrating their willingness to meet freight demand through regional cooperative efforts. MAFC's work program includes projects addressing multi-modal and freight planning issues in the 10-state region. Projects completed by MAFC include an assessment of freight bottlenecks and alleviation strategies for the multi-state region, development of performance measures for evaluating multi-state projects, aligning state freight plans to enhance state collaboration and establish regional and national harmonization of freight priorities.

MAFC initiated a regional freight study in 2010 to address the rapidly changing economic, logistical, and policy and infrastructure issues in a multi-modal, multi-state approach that maximizes the economic benefit from the region's freight transportation and logistics network. Upcoming projects include developing a Midwest truck platooning regulatory model, a regional bottleneck study, freight data training, and quantifying the value of modal investments. Organizationally, MAFC operates a transportation pooled fund, maintains technical contacts within each state, and participates in MAASTO committees. In addition to MAFC serving as a forum for collaboration, the organization also represents the Midwest states at the national level.

David Holt, Vice President of Operations & Business Development, Conexus Indiana

Conexus Indiana plays an important role in public and private sector collaboration around transportation and logistics in Indiana. The Conexus Indiana Logistics Council is a forum of 60

private sector leaders of logistics providers and users. The Council is working to enhance opportunities for companies to grow their businesses in Indiana, make it more attractive for manufacturing and logistics companies to relocate to or expand in Indiana, and create high paying jobs and increase state and local revenue.

Conexus Indiana developed a strategic business plan in three phases, beginning with a strategic plan in 2010, an implementation element in 2014, and an assessment of the state of Indiana's logistics industry in 2017. Stakeholders identified key action items to address in near and mid-term timeframes during the strategic business plan development. Representatives of the organization participate in Indiana's commission for transportation and infrastructure.

Q&A/Dialogue

Question for Mr. Holt: How does Conexus Indiana keep industry at the table and engaged in collaboration with the public sector?

Answer from Mr. Holt: It is important to be cautious when bringing the private sector and government together; many companies do business with the government. Because of this they may be hesitant to be critical or disagreeable for fear of damaging business relationships. Conexus Indiana is a coalition of businesses with a defined strategic plan, vision, and goals. This forum allows for more open dialogue with the public sector.

Question for Mr. Holt: Can an organization like Conexus Indiana be replicated in other areas?

Answer from Mr. Holt: This effort can be replicated elsewhere, but it won't happen quickly. It has taken 10 years to build it to where it is now. It also can't be started by the government; the impetus needs to come from the private sector. You need a foundation first, and a plan for what you want to accomplish.

PRIVATE INDUSTRY PERSPECTIVE ON TRANSPORTATION AND FREIGHT NEEDS

This session featured four speakers from the private sector to discuss their perspectives on planning for transportation across boundaries.

Steven Todd, Vice President, Specialized Carriers and Rigging Association (SCRA)

SCRA is a trade association that represents approximately 1,400 member companies from 46 nations. These members are involved in specialized transportation, machinery moving and erecting, industrial maintenance, and crane and rigging operations. SCRA monitors legislation and regulatory policies at the state and national levels, researches safety concerns and best business practices, and holds regular forums. The biggest issue for SCRA members is automated permitting. SCRA advocates for auto issue permits, for which there is no human interaction. A key factor for these systems is establishing harmonized data across jurisdictions.

Don Schaefer, Executive Vice President, Mid-West Truckers Association

The biggest issue for truckers in the Midwest is lack of uniformity in Truck Size and Weight requirements across jurisdictions and the desire for harmonization. From a megaregional perspective, Association members are also interested in addressing freight bottlenecks, increased funding for infrastructure, and thinking multi-modally.

Ray Drake, Vice President, State Government Affairs, United Parcel Service (UPS)

UPS supports the need to address transportation issues on a megaregional basis. From the point of view of the private sector, infrastructure is our means of commerce. UPS uses all transportation modes in conducting their business; they run the eighth largest airline and are the largest customer of railroad services. They are also a major user of waterways.

States are taking action when it comes to funding issues; 27 states have increased motor fuel taxes in recent years. The Federal government should be leveraging the states' funding. We need a commitment from the Federal government to fix the transportation problems. We need to develop sustainable funding, address maintenance needs, fix bottlenecks, and focus on key freight corridors, rail modernization (through programs such as CREATE), and FAA reauthorization.

Liisa Stark, Assistant Vice President - Public Affairs, Union Pacific Railroad (UP)

UP has a diverse business mix, with operations in 23 states, 33,000 miles of track, 42,900 employees, and 10,000 customers. The Midwest Chicago Megaregion aligns with UP's Northern Region. Freight challenges for Illinois railroads include aging infrastructure, congestion, unbalanced regulations, and state by state regulations. Chicago is the rail hub of the nation, and the nation's ports depend on Chicago to move their freight to other U.S. destinations. For example, 54 percent of intermodal units to/from the ports of Seattle/Tacoma touch Chicago. Improvements in the Midwest Chicago Megaregion will have benefits throughout the U.S. Opportunities to meet the challenges include public-private partnerships, a dedicated revenue source for freight projects, balanced regulation, permit streamlining, and technology.

Q&A/Dialogue

Comment from participant: The private sector collects a large amount of transportation-related data that would benefit planning, but planners often are not able to get this data. The participant urged the private sector to consider ways they can collaboratively share data while preserving business confidentiality.

MULTI-JURISDICTIONAL COORDINATION IN PRACTICE: HOW CAN STATE DOTS AND MPOS WORK TOGETHER TO PRIORITIZE MEGAREGIONAL NEEDS

This section provided an example of collaboration and partnership among states, an MPO, the private sector, and other stakeholders to address transportation needs and investments.

Mary Lamie, Executive Director, Bi-State Development Corporation

The St. Louis Regional Freightway is a public-private partnership created to optimize how the region manages the movement of freight on roads, rails, rivers, airports, and pipelines. It is one of five business enterprises of Bi-State Development Corporation, which was established in 1949 through an interstate compact between Missouri and Illinois. Bi-State Development can cross local, county, and state boundaries to plan, construct, maintain, own, and operate facilities and infrastructure, and is authorized to issue bonds, collect fees, and receive Federal, state and private funds.

The Freightway has achieved numerous success in the past two years, including development of a multimodal list of projects, engagement of potential partners throughout the Midwest and into the Gulf of Mexico, and development of marketing and advocacy plans for the regional effort. The Freightway is also engaging in discussions with other elected officials, MPO, DOTs and manufacturers, logistics, shippers and carriers. MoDOT will incorporate Missouri projects into the Missouri state freight plan. These successes demonstrate the value of collaboration across jurisdictional lines to reach agreement on transportation priorities, as well as the value of a governance structure in achieving results.

COLLABORATION AND PARTNERSHIPS ACROSS SECTORS: CHICAGO REGION ENVIRONMENTAL AND TRANSPORTATION EFFICIENCY PROGRAM (CREATE)

Bill Thompson, Chief Engineer of Create, American Association of Railroads

CREATE is a $4.4 billion public-private partnership designed to improve transportation flow through Chicago, by increasing railroad capacity, separating freight and commuter trains at key junctions, and separating numerous railroad grade crossings with local roads. CREATE is a collaborative project involving the six major North American freight railroads, two local switching railroads, Metra (commuter rail), Amtrak (passenger rail), the City of Chicago, IDOT, Cook County, and the USDOT.

CREATE is an excellent example of collaboration and partnership. In conjunction with establishing CREATE, the railroads also established the Chicago Transportation Coordination Office (CTCO) in January 2000. The CTCO is responsible for the coordination of rail operations in Chicago. It monitors freight and passenger train performance and works on solutions to daily operating problems. Efforts fall into one of three categories: action initiatives; task improvements; and operations coordination. CREATE is responsible for the coordination of rail capital improvements in Chicago. Starting in 2000, the railroads, IDOT, and the City of Chicago developed a plan that included 70 proposed improvements, and Chicago Mayor Daley announced the CREATE program in 2003 to move forward with the plan.

CREATE public benefits include passenger rail delay reduction, auto delay reduction, safety improvements, air quality improvements, and enhanced community quality of life. The $4.4 billion in investment in these CREATE projects is being shared by the project partners and will yield 30-year benefits of $31.5 billion. Of the 70 projects, 28 are completed, six are currently under construction, four are in final design, and 13 are in environmental review, with 19 projects remaining. Going forward, CREATE will continue working to leverage all funding opportunities and promote and advocate for important projects in order to complete them.

METROPOLITAN FREIGHT ACTIVITIES AND MEGAREGIONAL COORDINATION

In this session, several MPOs were asked to report information about freight planning activities and coordination efforts within their metropolitan regions, between regions, and with states. The session was facilitated by Brandon Buckner, FHWA Office of Planning.

Chicago Metropolitan Agency for Planning (Illinois)

Tom Kotarac, Deputy Executive Director of Policy & Programming, said the agency is underway with a strategic directions effort to prioritize the work they do in freight. They are also looking at

how they prioritize STP funds to consider freight and how their communities incorporate freight considerations. Freight will be a big focus of their next LRTP.

Bi-State Regional Commission (Iowa and Illinois)

Denise Bulat, Executive Director, reported that a megaregions approach has been a consideration for them for some time. The MPO did a study of a barge terminal several years ago that had implications well beyond the MPO's borders. They also did a regional freight study and developed a tool to visualize freight flow data. One of the key recommendations of the study was that the MPO should be more engaged in freight discussions. As a result, they now have a freight forum.

Northwest Indiana Regional Planning Commission (Indiana)

Ty Warner, Executive Director, displayed maps produced by the MPO of the extensive number of at grade crossings in the region. The MPO coordinated with CMAP and others to develop grade separation priorities. On another note, Ty spoke about the "South Suburban Airport" that has been proposed to be built in a suburb of Chicago. Residents and business in the MPO's region would use the airport extensively. However, since the airport is across the Indiana state line in Illinois, the MPO is not permitted to fund study and analysis. Ty described this as a megaregional issue.

Southeast Michigan Council of Governments (Michigan)

Chris Williams, Transportation Planner, reported that the MPO is currently in the process of updating their LRTP. The LRTP has a focus on infrastructure safety and preservation, and modernizing rail infrastructure. The region has an extensive arterial network and port network, and major border crossings. The busiest truck freight crossings in the Megaregion are in Michigan, with the Detroit, MI to Windsor, ON crossing the busiest border crossing in North America. The MPO coordinates with Michigan DOT, bordering MPOs, and Canadian governments. They are currently developing a commercial vehicle survey. As part of the survey, they are forming a Commercial Vehicle Survey Advisory Committee and seeking participation from stakeholders that are familiar with commercial vehicle operations in Southeast Michigan to help shape the survey design, guide outreach to survey participants, and review survey results.

Duluth-Superior Metropolitan Interstate Council (Minnesota and Wisconsin)

Ron Chicka, who presented earlier in the Workshop on the MPO's Harbor Technical Advisory Committee (HTAC), reported that the MPO has started a freight modeling effort. Intermodal connectors, which serve as first mile last mile routes to freight facilities, are very important and the MPO wants to make sure these are properly designated as part of the National Highway System in the region. The MPO has a subcommittee to the HTAC that is working on a Landside Port Access Study. They are also working on a new Truck Route Study that will examine current truck routes and the factors that influence truck movements to, through, and around the Duluth-Superior area to determine the most efficient, safest, and least disruptive truck routes.

Mid-America Regional Council (Missouri and Kansas)

Ron Achelpohl, Director of Transportation and Environment, stated that MARC is on the edge of the Midwest Chicago Megaregion, and they are also a bi-state MPO. The region is seeing an increase in logistics parks, which are forming on the edge of their metropolitan area. In addition, two major auto manufacturing facilities operate in the region (General Motors and Ford). This is

creating workforce issues as they struggle to get workers to these job locations. The states of Kansas and Missouri are both updating their statewide freight plans and MARC is actively participating in this work. MARC also engages with civic and economic development groups in the greater Kansas City region. These include the Kansas City SmartPort, which is a non-profit economic development organization that works to attract freight-based companies; and the Heartland Civic Collaborative, which serves as a regional voice for the Des Moines, Kansas City, Omaha and St. Louis metro areas, a subset of the megaregion.

Southeastern Wisconsin Regional Planning Commission (Wisconsin)

Kevin Muhs, Deputy Director, reported that the MPO recently completed their 2050 LRTP, which has a freight element. The MPO is a member of the FAC for the state freight plan, which has a focus on overweight and oversized routes. The MPO is often playing catch-up when it comes to freight. The MPO area includes a high percentage of wide load routes, so they are involved in an effort focused on high and wide load truck movements and utilities; it is sometimes more cost effective to permanently secure utility lines where they won't conflict with truck movements, rather than address them at each move event.

Q&A/Dialogue

Question to panel: How do the MPOs approach thinking about issues, such as the airport example, on a megaregional scale?

Answer from MARC: MARC's LRTP identifies connections between the MPO region and other parts of the states, nation, and even the world. This information is used when discussing and identifying regional priorities.

Answer from Bi-State Regional Commission: A large bridge project in the region that connected Illinois and Iowa finally came about after partnerships between the two states developed more fully. Developing these partnerships is critical.

Question to panel: How do the MPOs address MPO planning fund eligibility when working on megaregion issues?

Answer from MARC: It is very difficult for an MPO to spend money on issues that are outside of its planning area. Should we have additional considerations for defining MPOs and the studies that are eligible for funding, such as gross domestic product? These important questions and issues tie back to comments provided by Secretary Blankenhorn at the beginning of the workshop; the current Federal program is a limiting factor in taking a megaregional approach to addressing transportation challenges and opportunities.

PART 3—MOVING FORWARD

IDENTIFYING PRIORITY NEEDS AND POTENTIAL ACTIONS FOR THE MEGAREGION

Up until this point in the Workshop the sessions set the stage for megaregional thinking, and provided a handful of examples and models for collaboration across boundaries. States, MPOs, and the private sector provided their perspectives and described relevant planning activities.

In this session and the following session, the participants focused on key messages and identifying potential next steps. Participants first broke into small groups to identify common needs across the megaregion, and brainstorm priority needs, action items, and coordination approaches. They were asked to discuss the following questions in the small groups and record their answers.

- What projects or programs could be implemented or improved through Megaregional partnerships or joint activity?
- What partnerships currently exist that we can build on?
- What are the common interests and common needs discussed today?
- What are possible actions this group can address?

REPORT OUTS AND TAKING ACTION BEYOND THE WORKSHOP: AN OPEN DISCUSSION OF NEEDS, NEXT STEPS, AND ACTION ITEMS

Each break out group summarized their discussions and responses. Their answers are listed below by question, followed by additional comments.

<u>What projects or programs could be implemented or improved through Megaregional partnerships or joint activity?</u>

- Develop megaregion data and commodity flows.
- Identify a system for corridor management from a megaregional perspective.
- Coordinate state freight plans.
- Peer review of state freight plans.
- Regional project prioritization (broader than the boundaries of existing agencies).
    - Developing a megaregion freight plan and list of priority projects.
- Manage ITS data in a more active way across the megaregion.
- Talk to private sector as a megaregion rather than state by state. This may require some work but look for ways to learn industry needs and priorities.

<u>What partnerships currently exist that we can build on?</u>

- Mid-America Freight Coalition.
- MAASTO
- Great Lakes Regional Transportation Operations Coalition (GLRTOC)

<u>What are the common interests and common needs discussed today?</u>

- Several agencies are interested in methods to prioritize transportation projects across a scale larger than current MPO or state boundaries. What methods are available?
- One of the most common issues mentioned during the workshop is the interest in harmonization of truck requirements across jurisdictions.

- The states and MPOs in the workshop need to keep talking to each other.
- The Federal transportation program in its current form doesn't provide opportunities or incentives to think about transportation investments on a megaregional scale. We should continue to think about ways to address this.

What are possible actions this group can address?

- Increase the visibility of the Mid-America Freight Coalition. Provide enough resources so that MAFC becomes the go-to source for megaregional issues.
- FHWA can provide funding to states to coordinate state freight plans, or provide funding to an entity (research university or other) to conduct a review of state freight plans within a megaregion to identify commonalities and differences, with the goal of aligning plans in states with similar needs and priorities.
- Research governance structures and determine what a governing structure should look like for this megaregion.
- Keep meeting and talking with each other to share planning activities. Collaboration is key. Assess whether all partners are at the table and involve additional partners, including other states (e.g., Ohio) and Canada, as appropriate.

Comments and observations:

- Data propriety concerns will continue to be a barrier.
- The lack of engagement from railroads might be a problem.

CLOSING REMARKS AND FINAL THOUGHTS

During the Workshop, the Midwest Chicago Megaregion Workshop participants, hailing from the States of Illinois, Iowa, Indiana, Michigan, Minnesota, Missouri, and Wisconsin discussed current freight planning efforts, ongoing collaboration, and opportunities for multijurisdictional coordination. Speakers addressed megaregion perspectives from public and private sector organizations.

James Garland summarized the key takeaways from the Workshop and those identified in the break out groups. Participants are very interested in the topic of doing a peer review of state freight plans and identifying opportunities to coordinate. This could include developing megaregion data and commodity flows or identifying a system for corridor management from a megaregional perspective. There is also broad interest in conducting regional project prioritization that goes beyond state boundaries, which was a key theme of the MAASTO freight summit. Harmonization of truck requirements across jurisdictions is also a mutual interest among states and MPOs in the Megaregion. Participants believe it is important to keep this conversation going. As mentioned by Secretary Blankenhorn in the opening session, the current Federal transportation program doesn't provide opportunities or incentives to think about transportation on a megaregional scale, so we need to keep working to find ways to do so. We need to continue to work with the private sector, but must do so as a megaregion rather than on a state by state basis. We can build on partnerships that are already in place, such as MAASTO and MAFC. This means providing additional resources to these groups to undertake activities such as reviewing and coordinating state freight plans, researching methods to prioritize projects on a megaregional

scale, and providing a governance structure to manage and enhance the collaboration and cooperation already underway.

Erin Aleman, IDOT Director of Planning and Programming, and Kay Batey reiterated the importance of working together and thanked participants for attending the Workshop.

APPENDIX A: WORKSHOP AGENDA

Midwest Chicago Megaregion Workshop

Planning and Addressing Freight at the Megaregion Level Workshop Agenda

August 28 – 29, 2017
Ralph H. Metcalfe Federal Building, Room 331
77 West Jackson Boulevard
Chicago, IL 60604

DAY 1 - Monday, August 28, 2017

Part 1 – Setting the Stage

Purpose Statement: This workshop brings together members of the public and private sector to discuss how we can better connect and work with each other to address multimodal freight transportation on a megaregion level in the Midwest (IA, IL, IN, MI, MN, MO, WI) and identify next steps for doing so.

12:30-1:00 **Registration and Materials Pickup**

1:00-1:20 **Welcome/Introductions**

- Randy Blankenhorn, Secretary, Illinois DOT (confirmed)
- Joe Szabo, Executive Director, Chicago Metropolitan Agency for Planning (confirmed)
- Catherine (Kay) Batey, Division Administrator, FHWA Illinois Division (confirmed)

1:20-1:40 **Starting the Conversation: Planning and Addressing Freight at the Megaregion Level in the Midwest**
Overview of Workshop goals.
Introduction by: Kay Batey, FHWA Illinois Division
Speaker:

- James Garland, FHWA Office of Planning (confirmed)

1:40-2:50 **State DOT Perspectives on Freight, Economic Development, and Megaregional Coordination**
Facilitated by: Brandon Buckner, FHWA Office of Planning
Speakers:

- State DOTs

2:50-3:00 **BREAK**

3:00-3:45 **Transportation and Economic Development Efforts in the Midwest**
Transportation, freight, and economic development activities that have benefits across the Megaregion.
Facilitated by: James Garland, FHWA Office of Planning

Speakers:
- Ron Chika, Duluth Superior Metropolitan Interstate Council (confirmed)
- John Greuling, Will County (IL) Center for Economic Development / CenterPoint Intermodal Center (confirmed)

3:45-4:00 **Day One Wrap Up/Open Discussion**
Speaker: Brandon Buckner, FHWA Office of Planning

4:00 **ADJOURN**

5:00-6:30 **NETWORKING EVENT @ Cavanaugh's Restaurant**
53 W. Jackson Blvd, Chicago

6:30 **WALKING TOUR to Millennium Park**

7:45 **ARCHITECTURAL BOAT TOUR with Wendella Chicago**
Cost ranges from $19-$35 per person depending on group size. Tour is approximately 75 minutes. Please contact Betsy Tracy (Betsy.Tracy@dot.gov) no later than COB Friday 8/25 to sign up.

DAY 2 - Tuesday, August 29, 2017

Part 2 – Current and Near-Term Megaregional Initiatives

8:15-8:30 **Gather/Coffee and Networking**
Registration and materials pick up for day-two only participants

8:30-8:45 **Recap of Day 1 and Overview of Day 2**
Speaker: James Garland, FHWA Office of Planning

8:45-9:30 **Addressing Uniform Permitting and Truck Parking to Aim for Seamless Travel across the Midwest Megaregion**
Facilitated by: Mary Forlenza, FHWA Wisconsin Division
Speakers:
- Mary Forlenza, FHWA Wisconsin Division - Regional Truck Parking Information and Management System (confirmed)
- Nick Vlahos, Cambridge Systematics - Uniform Permitting Activities (confirmed)
- Alex Beata, Chicago Metropolitan Agency for Planning - Regional Truck Permitting Study (confirmed)

9:30-10:00 **Megaregional Collaboration in the Midwest**
Overview of research and collaboration efforts across the Megaregion.
Facilitated by: James Garland, FHWA Office of Planning
Speakers:

- Ernie Perry, Mid-America Freight Coalition / Center for Freight and Infrastructure Research and Education (confirmed)
- David Holt, CONEXUS Indiana (confirmed)

10:00-10:15 **BREAK**

10:15-11:15 **Private Industry Perspective on Transportation and Freight Needs**
Explore freight trends, needs, and challenges.
Facilitated by: Brandon Buckner, FHWA Office of Planning
Speakers:

- Steven Todd, Specialized Carriers and Rigging Association (confirmed)
- Donald Schaefer, Midwest Truckers Association (confirmed)
- Ray Drake, United Parcel Service (confirmed)
- Liisa Stark, Union Pacific Railroad (confirmed)
- Rich Cooper, Ports of Indiana (invited)

11:15-11:45 **Multi-jurisdictional Coordination in Practice: How can State DOTs and MPOs Work Together to Prioritize Megaregional Needs**
Facilitated by: James Garland, FHWA Office of Planning
Speaker:

- Mary Lamie, Bi-State Development Corporation, Greater St. Louis area (confirmed)

11:45-1:00 **WORKING LUNCH AND SPECIAL PRESENTATION**
Collaboration and Partnerships across Sectors: CREATE
Facilitated by: Betsy Tracy, FHWA Illinois Division
Speakers:

- Bill Thompson, Association of American Railroads, Presenter and Moderator (confirmed)
- Jeffrey Sriver, City of Chicago (invited)
- Beth McCluskey, Illinois DOT (invited)

1:00-2:15 **Metropolitan Freight Activities and Megaregional Coordination**
MPO participants discuss freight and economic development activities and challenges.
Facilitated by: Brandon Bucker, FHWA Office of Planning
Speakers:

- IL: Chicago Metropolitan Agency for Planning
- IA: Bi-State Regional Commission
- IN: Northwest Indiana Regional Planning Commission
- MI: Southeast Michigan Council of Governments
- MN: Duluth-Superior Metropolitan Interstate Council
- MO: Mid-America Regional Council
- WI : Southeastern Wisconsin Regional Planning

2:15-2:30 **BREAK**

Part 3 – Moving Forward

2:30-3:15 **Facilitated Breakouts: Identifying Priority Needs and Potential Actions for the Megaregion**
Breakout groups to identify common needs across the megaregion and brainstorm priority needs, action items, and coordination approaches.

3:15-3:45 **Report Outs and Taking Action Beyond the Workshop: An Open Discussion of Needs, Next Steps, and Action Items**
Develop concrete action items to carry forward.
Facilitated by: James Garland, FHWA Office of Planning

3:45-4:00 **Closing Remarks and Final Thoughts**

- Randy Blankenhorn, Secretary, Illinois DOT
- Joe Szabo, Executive Director, Chicago Metropolitan Agency for Planning
- Kay Batey, Division Administrator, FHWA Illinois Division
- James Garland, Team Leader, FHWA Office of Planning

4:00 **ADJOURN**

APPENDIX B: MIDWEST CHICAGO MEGAREGION WHITE PAPER

The Midwest Chicago Megaregion White Paper is included in the following pages.

August 2017

Midwest Chicago MEGAREGION

U.S. Department of Transportation
Federal Highway Administration

Midwest Chicago Megaregion

August 2017

INTRODUCTION

This paper provides an overview of a number of current initiatives and partners working together to address issues at the megaregion scale in the Midwest. The connected planning, infrastructure, economic and workforce considerations are presented, focusing on both existing opportunities and challenges. For the purposes of this white paper, the Midwest Chicago Megaregion includes Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, and Wisconsin.

The economic activity of the Midwest Chicago Megaregion centers on several large metro regions that serve as transportation and economic hubs. The Chicago region is the largest economic, transportation, and freight hub in the Midwest and one of the nation's largest, as it is centrally located to serve the entire United States (U.S.). According to the Chicago Metropolitan Agency for Planning (CMAP):

> *"Approximately 25 percent of all freight trains and 50 percent of all intermodal trains in the United States pass through metropolitan Chicago. Trucks account for about one in seven vehicles on the urban Interstate highways in Illinois, and some roadways in metropolitan Chicago carry more than 30,000 trucks each day. The region is also home to one of the nation's largest and fastest-growing air cargo hubs and the only direct maritime connection between the Great Lakes and Mississippi River basins."*[1]

Additional major cities located in the Midwest Chicago Megaregion include Indianapolis, IN; Des Moines, IA; Detroit, MI; Minneapolis, MN; St. Louis, MO; and Milwaukee, WI. Each has its own history and economic focus. For instance, the Twin Cities region is the 13th largest metropolitan area in terms of gross domestic product (GDP), and the region has a leading position in medical device manufacturing and banking. The Detroit region is a major industrial center whose auto manufacturing industry links it closely with suppliers in the U.S. and Canada. Table 1 presents the largest metropolitan statistical areas (MSAs) in each of the seven states, as measured by 2015 gross domestic product and gross metropolitan product (GDP and GMP).

Table 1: The Seven States and Their Largest MSAs in the Midwest Chicago Megaregion by GDP 2015

State	2015 GDP (billion $)	Share	Largest MSA	2015 GMP (billion $)	Share
Illinois	772	4.31%	Chicago-Naperville-Elgin, IL-IN-WI	641	3.57%
Indiana	333	1.86%	Indianapolis-Carmel-Anderson, IN	134	0.75%
Iowa	176	0.98%	Des Moines-West Des Moines, IA	466	0.26%
Michigan	471	2.63%	Detroit-Warren-Dearborn, MI	246	1.37%
Minnesota	327	1.82%	Minneapolis-St. Paul-Bloomington, MN-WI	249	1.39%
Missouri	293	1.63%	St. Louis, MO-IL	155	0.87%
Wisconsin	302	1.68%	Milwaukee-Waukesha-West Allis, WI	102	0.57%
US Total	17,925	100%	US Total	17,925	100%

Data Source: Bureau of Economic Analysis

[1] Chicago Metropolitan Agency for Planning, On to 2050 Snapshot, http://www.cmap.illinois.gov/documents/10180/517119/FY17-0095+Freight+Snapshot/3ae1174d-d8f4-4005-8a9f-e02eb87eeac2.

The Midwest Chicago Megaregion is endowed with abundant highway infrastructure and generates a large amount of vehicle miles traveled (VMT) accounting for about 16.6% of the national total. Almost all the states in the Midwest Chicago Megaregion, except Illinois, have above-average VMT per capita compared to national trends, as shown in Table 2. The below-average VMT per capita of Illinois is likely a result of higher mode shares of transit and active travel modes in the state and especially in the Chicago region. The megaregion's heavy reliance on automobile calls for continuing effort for building and maintaining sustainable and resilient transportation infrastructure and also reflects a need to encourage alternative travel modes in the region.

Table 2: Total VMT and VMT per capita by State in the Midwest Chicago Megaregion in 2014

State	Total VMT (millions)	VMT Share	VMT per capita
Illinois	104,906	3.47%	8,176
Indiana	79,204	2.62%	12,216
Iowa	31,414	1.04%	10,312
Michigan	97,384	3.22%	9,853
Minnesota	57,395	1.90%	10,821
Missouri	70,909	2.34%	11,840
Wisconsin	60,053	1.98%	10,560
Midwest Chicago Megaregion, total	501,264	16.57%	10,097
United States, total	3,025,656	100.00%	9,800

Data Source: Bureau of Transportation Statistics

IMPORTANCE OF MEGAREGIONS

Megaregions are characterized as networks of urban centers and their surrounding areas, connected by existing economic, social, and infrastructure relationships.[2] In an increasingly competitive global economy, it is critical to understand these economic ties and the transportation infrastructure that serves as the link within and between regions, and that provide connections across the U.S. and beyond. In order to better understand the impact of megaregions and to facilitate cooperation and coordination accordingly, the Federal Highway Administration (FHWA) is sponsoring several workshops in megaregions across the country. These workshops unite local, regional, state, and Federal transportation officials together with the private sector to discuss how to address multimodal freight transportation, effective and efficient transportation infrastructure investment and operations, and corresponding shared economic success at the megaregion scale. The importance of this collaborative effort is underscored by the current and rising significance of these regions both nationally and globally. Megaregions are economic engines and are also major destinations and originators of travel.

Transportation infrastructure provides the mobility within and between cities and metropolitan areas in the region, and is the means for goods movement. The region's ports, highways, railroads, airports, pipelines, and intermodal connections will need continued investment to transport agricultural produce, manufactured products, and raw materials to their final destinations. Coordinated, comprehensive transportation planning activities are necessary to ensure that the megaregion can effectively compete in the global economy. Decisions regarding transportation projects and priorities are made by local and state entities with support from

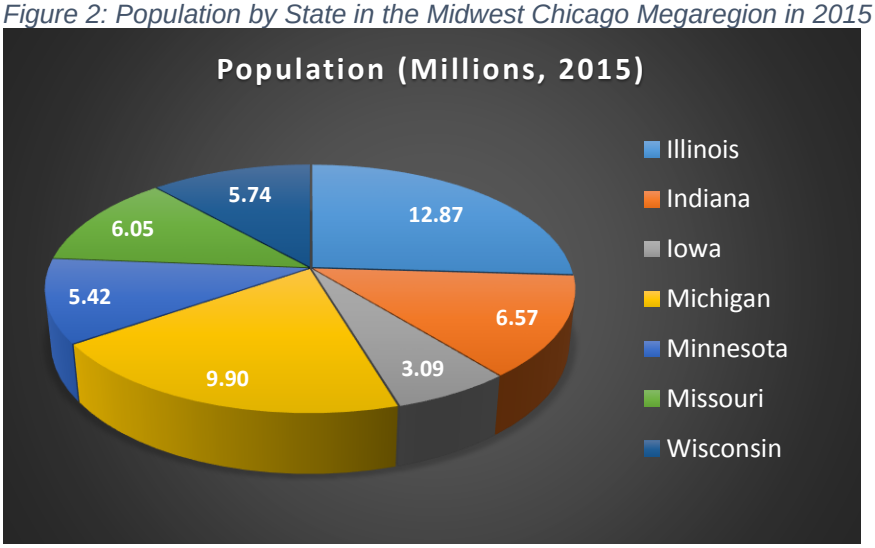
[2] Ross et al. (2009). Delineating Existing and Emerging Megaregions.

appropriate Federal partners. Funding is coordinated by the 73 Metropolitan Planning Organizations located in the Midwest Chicago Megaregion.[3]

POPULATION

The total population of the megaregion was more than 49 million people in 2015 (15 percent of the US population).[4] Illinois is the most populous state, followed by Michigan, as shown in Figure 1. The fastest-growing areas (defined by the MSA) in the megaregion are often moderate-size regions, such as Grand Rapids-Wyoming (MI), followed by Sioux City (IA-NE-SD), and Rochester (MN).[5] The Grand Rapids-Wyoming region has been one of the fastest growing regions for economic and population growth. Between 2011 and 2015, its population has increased by over thirty percent.[6] which is significantly faster than any other areas in the megaregion. Its fast economic growth is attributable to the recovery of manufacturing and diversification of the economy base[7], and population growth due to net migration and higher birth rates[8]. The capacity of transportation infrastructure in moderate-size regions is often constrainted and may face future challenges, especially when the population and economy are growing unusually fast. Attention should be paid to infrastructure planning to support development in these fast-growing regions.

Figure 2: Population by State in the Midwest Chicago Megaregion in 2015



Data source: American Community Survey (2011-2015) by the U.S. Census Bureau

[3] U.S. DOT (2017). Transportation Planning Capacity Building. Retrieved from https://www.planning.dot.gov/mpos1.asp.

[4] U.S. Census, 2015.

[5] U.S. Census, 2015.

[6] U.S. Census, 2015.

[7] Martinez, S. (2015). Grand Rapids joins big leagues: Ranks 3rd in nation for economic growth. Retrieved July 13, 2017, from http://www.mlive.com/business/west-michigan/index.ssf/2015/06/greater_grand_rapids_metro_are.html.

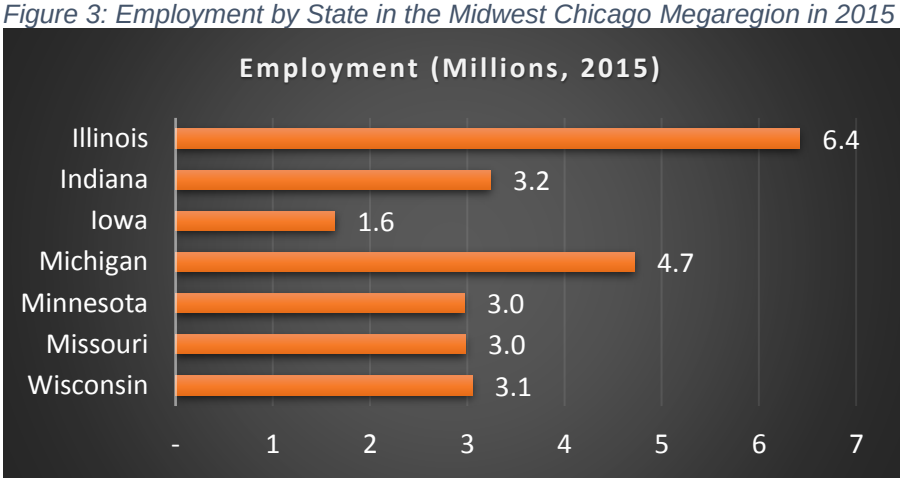
[8] Bunte, M. V. (2016). Michigan's fastest-growing metro area is Grand Rapids. Retrieved July 13, 2017, from http://www.mlive.com/news/grand-rapids/index.ssf/2016/03/michigans_fastest-growing_metr.html.

EMPLOYMENT

The Midwest's largest employment sectors include agriculture, manufacturing, forestry, retail, healthcare, and tourism. The megaregion is supported by the world's largest fresh water lake system, which is relevant for farming, fishing, tourism, and inland water transport. Farmland represents approximately 25 percent of the total land area, and it produces a significant portion of the nation's food supply. In addition, the management and enterprise sector, transportation, warehousing, and services also contribute to the megaregion's economy. The megaregion has seen some job loss in manufacturing due in part to the decline of the auto industry in the Midwest. The Midwest is also home to many centers of technical and higher education that contribute to a well-trained, knowledgeable workforce.[9]

Employment for each state is shown in Figure 2. As the Midwest Chicago Megaregion responds to reduced manufacturing, state and local officials are exploring other ways to grow and diversify their economy. The megaregion's assets include a strong base in research and technology due to its leading public universities, and the amenities inherent to the region from its location near the Great Lakes.[10]

Figure 3: Employment by State in the Midwest Chicago Megaregion in 2015



Data source: American Community Survey (2011-2015) by the U.S. Census Bureau

MEGAREGION INFRASTRUCTURE

The Midwest Chicago Megaregion has a large and developed network of freight and passenger transportation infrastructure across all modes. Figure 3 summarizes key megaregion transportation facilities. Each mode is discussed in more detail in the following sections.

9 Delgado, E., Epstein, D., Joo, Y., Mann, R., Moon, S., Raleigh, C., Rhodes, E., & Rutzick, D. (2006). Through a Wider Lens: Re-envisioning the Great Lakes Mega Region.

10 Ross, C. L. Spatial Planning in the U.S., Europe, and Asia (Unpublished Manuscript).

Figure 4: Partial List of Key Megaregion Transportation Facilities

Partial List of Key Megaregion Transportation Facilities		
HIGHWAYS		I-24, I-29, I-35, I-39, I-43, I-44, I-55, I-57, I-64, I-65, I-69, I-70, I-72, I-74, I-75, I-79, I-80, I-88, I-90, I-94, I-96; Auxiliary (3-digit) Interstates omitted for brevity.
RAILROADS		Freight: BNSF, Canadian National, Canadian Pacific, CSX, Kansas City Southern, Norfolk Southern, Union Pacific Passenger: Amtrak, Metra, South Shore Line, Northstar
AIRPORTS		BJI, BRD, CGI, CID, DSM, DTW, FNT, GRB, GRR, IND, MIC, MDW, MKE, MLI, MSN, MSP, ORD, RFD, RST, STL, TVC, UIN, YIP
WATERBORNE		Ports of: Burns Waterway Harbor, IN; Calcite, MI; Chicago, IL; Detroit, Mil Drummond Island, MI; Duluth-Superior, MN and WI; Gary, IN; Green Bay, WI, Indiana Harbor, IN; Kaskaskia, IL; Milwaukee, WI; Monroe, MI; Port Dolomite, MI; Silver Bay, MN; Southeast Missouri, MO, St. Clair, MI; St. Louis, MO and IL; St. Paul, MN,.

MAJOR TRANSPORTATION FREIGHT FLOWS

To support projected population and economic growth, freight movements across all modes in the U.S. are expected to grow by roughly 42 percent by the year 2040.[11] This steady growth is the result of the national economic trajectory, an increase in U.S. international merchandise trade, improvements in freight sector productivity, and the availability of an extensive multimodal transportation network. With this increase, it is critical that rail and roadway connectivity be maintained and enhanced, and that the system remain in a state of good repair as infrastructure ages.

Freight movement in the Midwest Chicago Megaregion is facilitated by all transportation modes. Table 3 displays total freight volumes by mode and state in the megaregion, totaling over 4.5 million kilotons. The highest volume of all freight is transported through Illinois (26 percent), followed by Minnesota (15 percent) and Indiana (14 percent), depicted in Figure 4.

[11] National Freight Strategy Framework, https://ops.fhwa.dot.gov/freight/pol_plng_finance/policy/documents/nfsf/ssc3.htm.

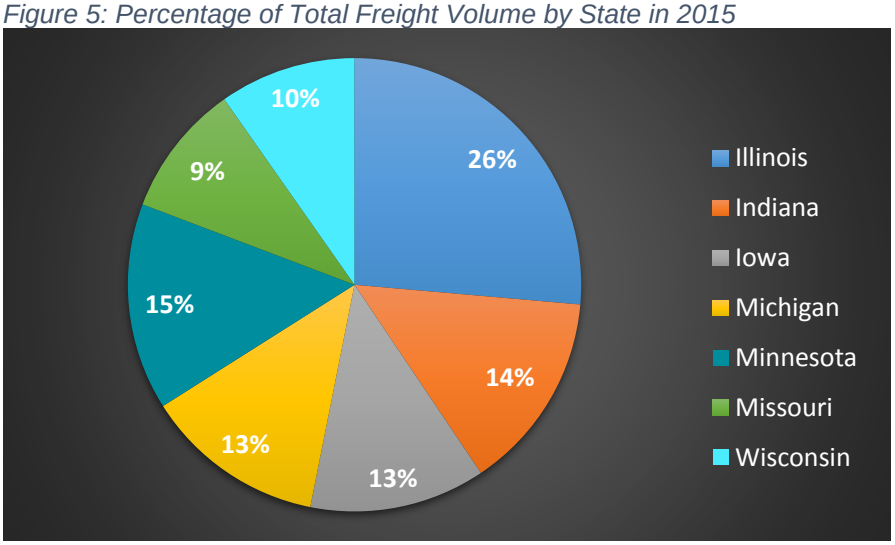
Table 3: Midwest Chicago Megaregion Freight Tonnage (in kilotons, 2015)

	Truck	Rail	Water	Air	Other	Total
Illinois	1,097,507	274,234	35,180	1,244	386,955	1,795,121
Indiana	624,098	104,310	21,945	240	215,014	965,607
Iowa	639,325	93,960	4,509	98	115,494	853,385
Michigan	529,647	142,546	53,051	412	151,105	876,761
Minnesota	653,863	151,417	18,961	192	179,035	1,003,467
Missouri	440,336	73,652	21,495	116	109,631	645,230
Wisconsin	534,280	71,375	11,092	218	45,855	662,819
Total	4,519,056	911,493	166,234	2,519	1,203,088	6,802,390

Note: Other includes multiple modes, pipelines, and "movements not elsewhere classified such as flyaway aircraft, and shipments for which the mode cannot be determined" [12]

Data source: Freight Analysis Framework version 4 (FAF4)

Figure 5: Percentage of Total Freight Volume by State in 2015

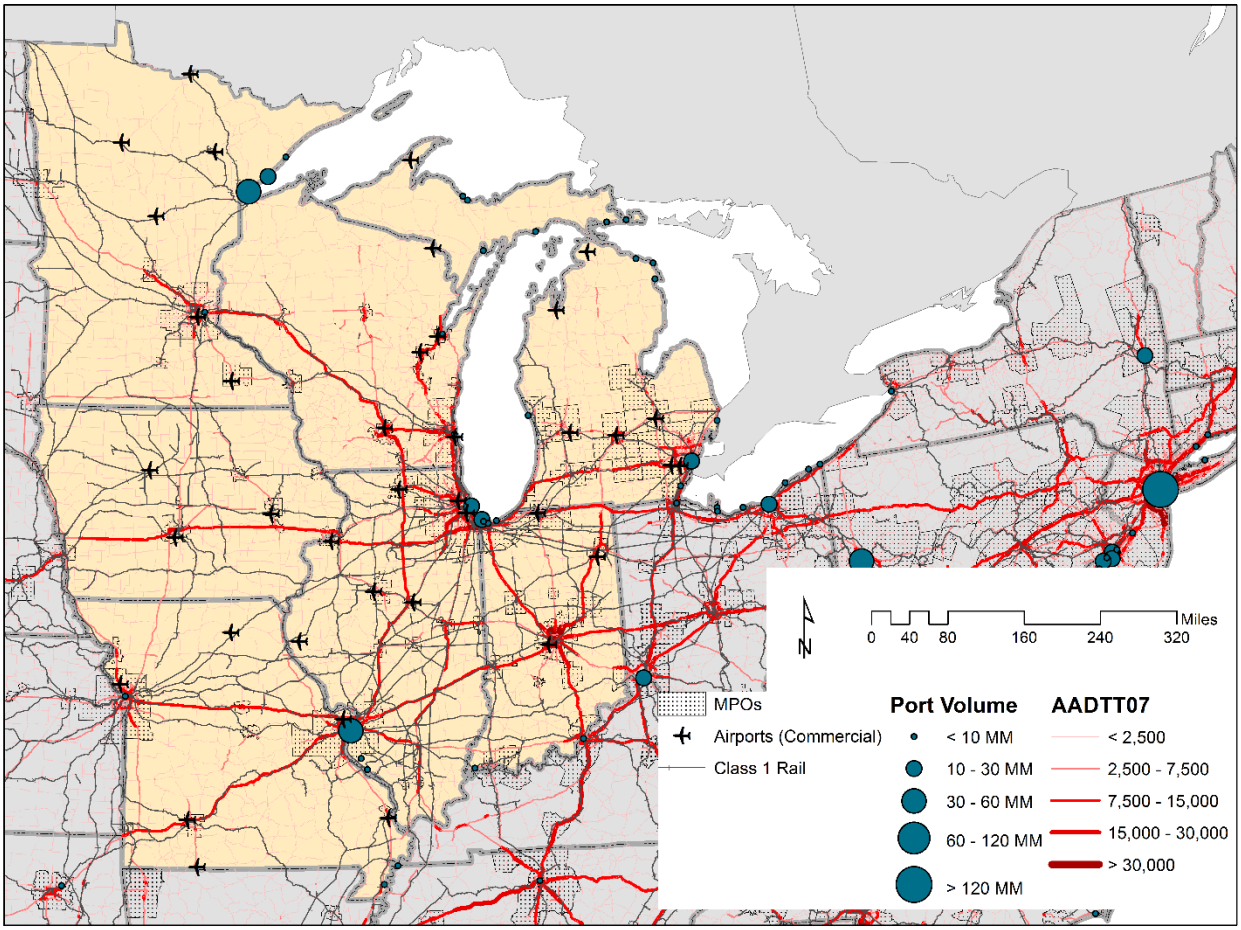


Data source: Freight Analysis Framework version 4 (FAF4)

Freight in the megaregion moves on infrastructure for different modes. Figure 5 shows the major transportation corridors. Truck traffic is depicted on the Interstate Highway network, where the darker red lines signify heavier truck volumes. The region also has many ports on major rivers and the Great Lakes, whose throughput by weight (tons) is depicted by the size of the teal circle. Major megaregion ports include Chicago, IL; St. Louis, MO; Duluth, MN; and Detroit, MI. The Class 1 rail network and commercial airports are also depicted.

[12] Bureau of Transportation Statistics. "Freight Analysis Framework Version 4 User's Guide for Release 4.0." Retrieved from https://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/subject_areas/freight_transportation/faf/users_guide/.

Figure 6: Midwest Chicago Megaregion Transportation Infrastructure.



Note: Port volume in tons (2015)

Data source: National Transportation Atlas Database of the Bureau of Transportation Statistics, 2015 (rail, airports, seaports); and Freight Analysis Framework version 4, 2007 (average annual daily truck traffic)

At the national level, six trends and challenges have been identified in the National Freight Strategic Plan (NFSP) developed by U.S. Department of Transportation (US DOT).[13] These trends guide US DOT's interest and efforts to help improve freight nationally. The trends include (1) expected growth in freight tonnage; (2) underinvestment in the freight system; (3) difficulty in planning and implementing freight projects; (4) continued need to address safety, security, and resilience; (5) increased global economic competition; and (6) the application and deployment of new technologies. Many of these trends are also present in the Midwest Chicago Megaregion's freight profile and can help guide efforts to improve freight systems in the megaregion.

The Fixing America's Surface Transportation (FAST) Act provided new tools to address freight challenges. The FAST Act establishes a new National Highway Freight Program (NHFP) with the goal of improving freight movement efficiency on the National Highway Freight Network (NHFN).[14] The FAST Act creates a new national policy with specific goals about the freight network's

[13] US DOT (2015). National Freight Strategic Plan. Retrieved from https://www.transportation.gov/freight/NFSP.

[14] National Highway Freight Program: https://www.fhwa.dot.gov/fastact/factsheets/nhfpfs.cfm.

condition, safety, security, efficiency, productivity, resiliency, and reliability. NHFP funds can be used for a wide range of activies and projects that cover freight planning, analysis, and forecasting, infrastructure construction and rehabilitation, intelligent transportation system and technology deployment and so on. The Infrastructure for Rebuilding America (INFRA) discretionary grant program[15] (previously called FASTLANE) also provides funds to repair aging infrastructure, with 25% of funds reserved for rural projects.

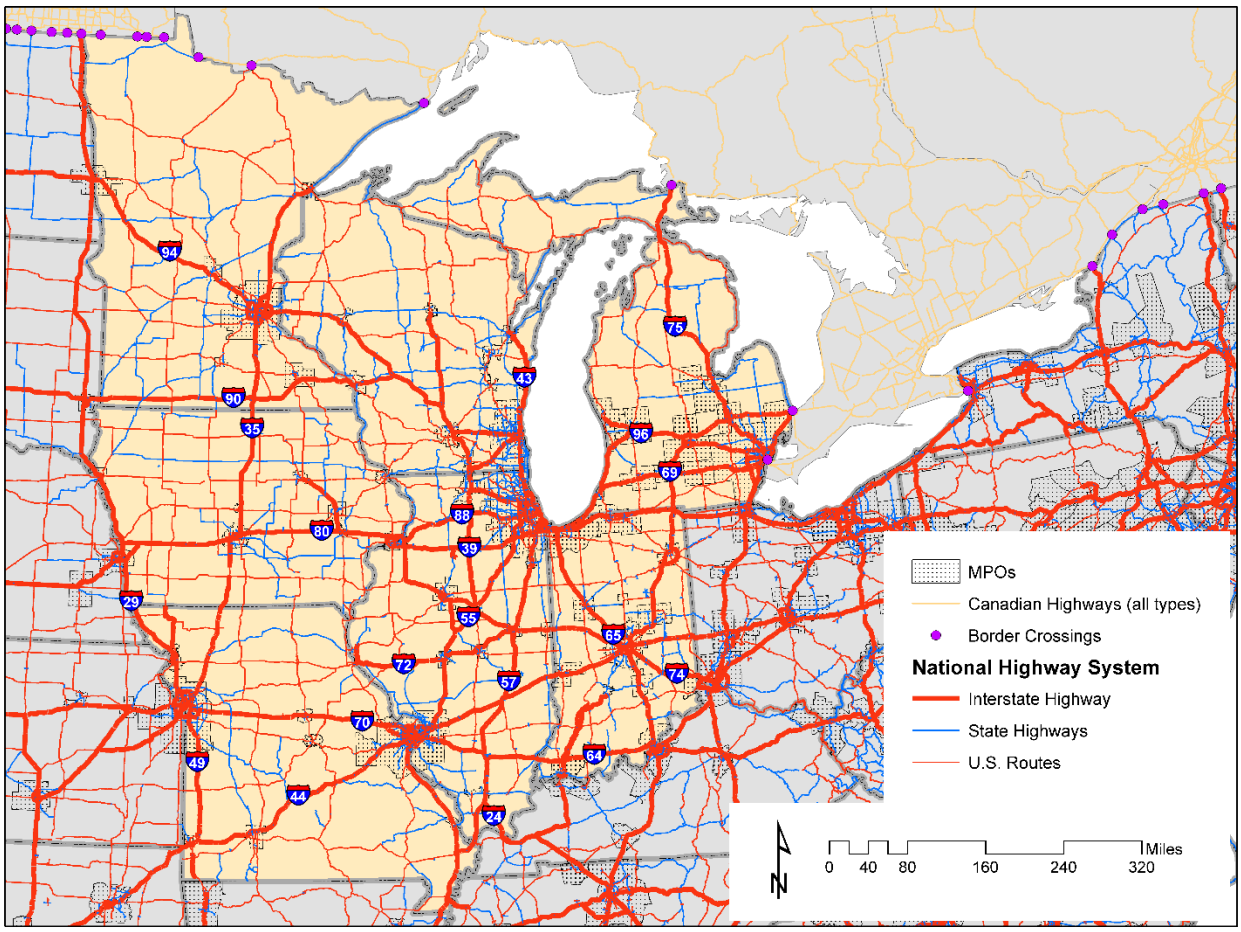
HIGHWAYS

The Midwest Chicago Megaregion is well served by Interstate Highways, state highways, and U.S. routes, which form a web-like network. There are more than eight thousand centerline Interstate miles in the megaregion and nearly 30 thousand miles of state highways and U.S. routes[16]. The highways converge around several metropolitan areas, which serve as ground hubs, including Chicago, IL; Indianapolis, IN; Detroit, MI; St. Louis, MO; Des Moines, IA; the Quad City region, IA-IL; Minneapolis-St. Paul, MN; and Madison and Milwaukee, WI. Figure 6 depicts the megaregion's highway network.

[15] US DOT (2017). Retrieved from https://www.transportation.gov/buildamerica/infragrants.

[16] Calculated from the Freight Analysis Framework, version 4 (FAF4).

Figure 7: Midwest Chicago Megaregion National Highway System



Data source: Federal Highway Administration (2015)[17] (National Highway System); National Transportation Atlas Database of the Bureau of Transportation Statistics (2015) (border crossings)[18]

Congestion on the megaregion's roads accounts for around 800 million annual vehicle-hours of delay, of which 80 percent occurs in the four most congested regions: Chicago, IL; Detroit, MI; Minneapolis-St. Paul, MN; and St. Louis, MO. In the most congested regions, volume-based delays can easily double or even triple travel time. Congestion in the megaregion is responsible for at least 390 million gallons of excess fuel burn, which roughly equates to an extra 7.5 billion pounds of CO_2 released annually.[19] [20]

Within the megaregion, Michigan and Minnesota border Canada. The busiest truck freight crossings are between Ontario in Canada and the cities of Detroit and Port Huron in Michigan. Manufacturing and industrial production is very integrated across the border, with a combination of bridges, tunnels, and ferries making the Detroit, MI – Windsor, ON crossing the busiest border

[17] Retrieved from https://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/.

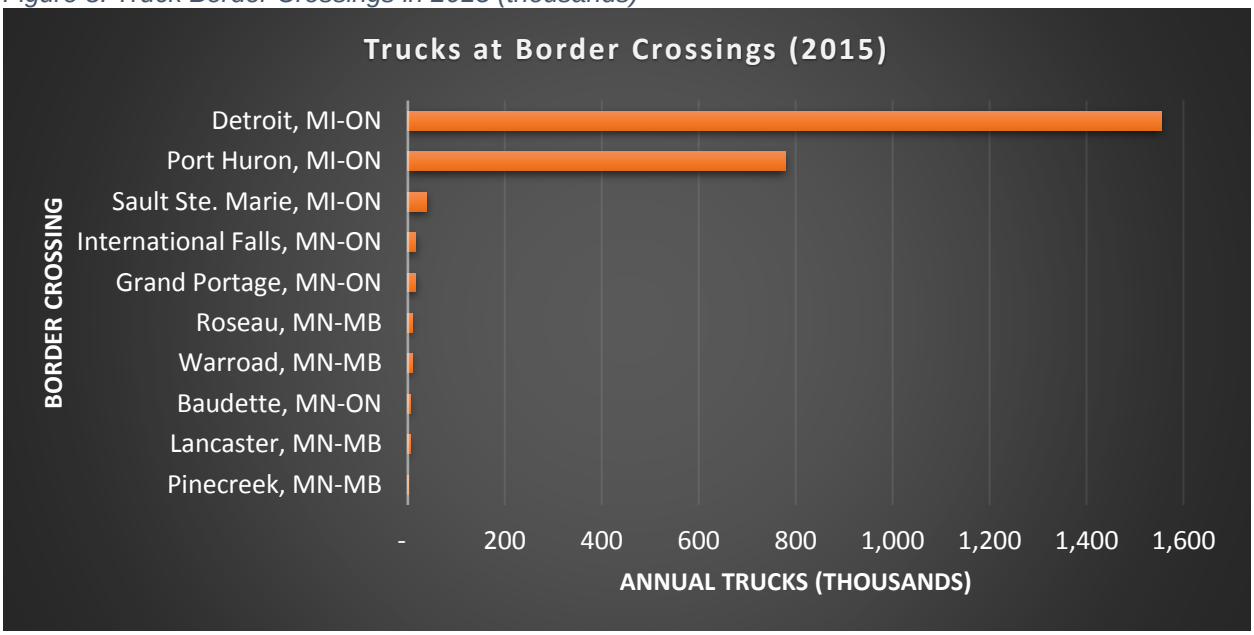
[18] https://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2015/index.html.

[19] Texas A&M Transportation Institute (2015). Annual Urban Mobility Scorecard. Retrieved from https://mobility.tamu.edu/ums/.

[20] EPA (2017). Greenhouse Gases Equivalencies Calculator. Retrieved from https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

crossing in North America.[21] Outside of southeastern Michigan, the busiest truck crossings are in Sault Ste. Marie, MI; International Falls, MN and Grand Portage, MN, as shown in Figure 7.

Figure 8: Truck Border Crossings in 2015 (thousands)



Data source: National Transportation Atlas Database of the Bureau of Transportation Statistics (2015)[22]

The megaregion's intricate highway network has already prompted inter-agency coordination across jurisdictional boundaries. For example, the Great Lakes Regional Transportation Operations Coalition (GLRTOC) is a partnership that has been established in the megaregion to "collaborate to improve cross- regional transportation operations in support of regional economic competitiveness and improved quality of life."[23] The transportation and tollway agencies that are members, cover the states of Minnesota, Wisconsin, Illinois, Indiana, and Michigan, as well as the Canadian province of Ontario. GLRTOC has identified specific corridors to test new types of coordination among the transportation agencies. For example, I-90, a major corridor through the Midwest Chicago Megaregion, is an area where coordination is required to address winter weather issues. Interstate 69 is another corridor for work zone coordination, and a stretch of I-90 between Madison, WI and Rockford, IL is a test site for work zone performance monitoring that includes the Wisconsin and Illinois Departments of Transportation and Illinois Tollway.[24] In addition, as part of a $25 million 2015 Transportation Investment Generating Economic Recovery (TIGER) Grant, Indiana, Iowa, Michigan, Minnesota and Wisconsin, joined by Kansas, Kentucky,

[21] Walker, K. and Rahman, S. (2013). The Detroit River International Crossing Bridge. A stakeholder analysis of how one wealthy individual could exercise his will against many. Retrieved from http://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1070&context=odettepub.

[22] https://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2015/index.html.

[23] Transportation Operations Coalition (GLRTOC) Partnership Statement, http://www.glrtoc.org//wp-content/uploads/2015/01/glrtoc_partnership_20110208v2.pdf.

[24] FHWA Work Zone Management Program. Coordination of projects in the Great Lakes Region. Retrieved from https://ops.fhwa.dot.gov/wz/construction/crp/greatlakesreg/index.htm.

and Ohio, are making operational and safety improvements, such as installing electronic roadway signs to notify truck drivers of parking availability at rest areas.[25]

RAILROADS

The Midwest Chicago Megaregion is one of the few places in the country served by all seven American and Canadian Class I freight railroads and many short line railroads. Railroads provide connectivity for passengers and freight movement across the country, and from Canada to the Gulf of Mexico. Railroads link cities with seaports along the Great Lakes and provide connections for barge traffic along the Inland Waterway System (IWS).

Different railroads dominate in different portions of the megaregion. Michigan and Indiana are primarily served by CSX and Norfolk Southern, while Michigan, Wisconsin, Iowa, and Missouri are served predominantly by Union Pacific and BNSF. Eastern and western railway networks converge around Illinois, and the additional Class 1 operators (Canadian National, Canadian Pacific, and Kansas City Southern) connect the megaregion with very large networks to the north and south. Amtrak serves as the primary passenger rail service between major cities in this region and is supplemented by regional carriers Metra, South Shore Line, and Northstar. Figure 8 depicts the Class 1 railroad network.

An industrial heartland route links Montreal, Toronto, Detroit, and Chicago. Approximately 60 percent of the Port of Montreal container traffic that moves inland to the Midwest comes by rail. Movement through this bi-national route is slowed by a bottleneck at the Detroit River. In response to the bottleneck, a joint venture has been established between the Canadian Pacific, the Windsor Port Authority, and the Borealis Infrastructure investment firm to design and build the Continental Rail Gateway (CRG) to replace the existing rail tunnel. This project will strengthen two major economic sectors of the region, namely manufacturing and agriculture, by loosening the rail bottleneck between a key Atlantic port and the megaregion.[26]

The partnership known as the Chicago Regional Environmental and Transportation Efficiency Program (CREATE) is a public-private partnership among six of the seven Class 1 Freight railroads, Amtrak, Metra, the Illinois Department of Transportation, City of Chicago, Cook County, and the US DOT. CREATE is investing in the region's rail infrastructure to reduce delays and increase efficiency. This effort includes 70 projects (e.g., new road overpasses, track and signal upgrades, safety improvements for at-grade crossings), which will allow trains to operate more smoothly.[27]

The megaregion also contains numerous rail intermodal centers that allow for goods transfer between modes. One of the largest is the CenterPoint Intermodal Center in Will County, IL, which includes intermodal terminals for both Union Pacific and BNSF, and 6,500 acres of land for warehousing and logistics.[28] The county has seen freight traffic grow 138 percent since 2007.[29] While Illinois has the most rail intermodal terminals at 22, each Midwest state has them, often for

[25] GLRTOC (2016). Dynamic message signs near four Wisconsin rest areas provide real-time parking information for commercial drivers. Retrieved from http://www.glrtoc.org/truck-parking-technology/.

[26] American 2050. Retrieved from http://www.america2050.org/great_lakes.html.

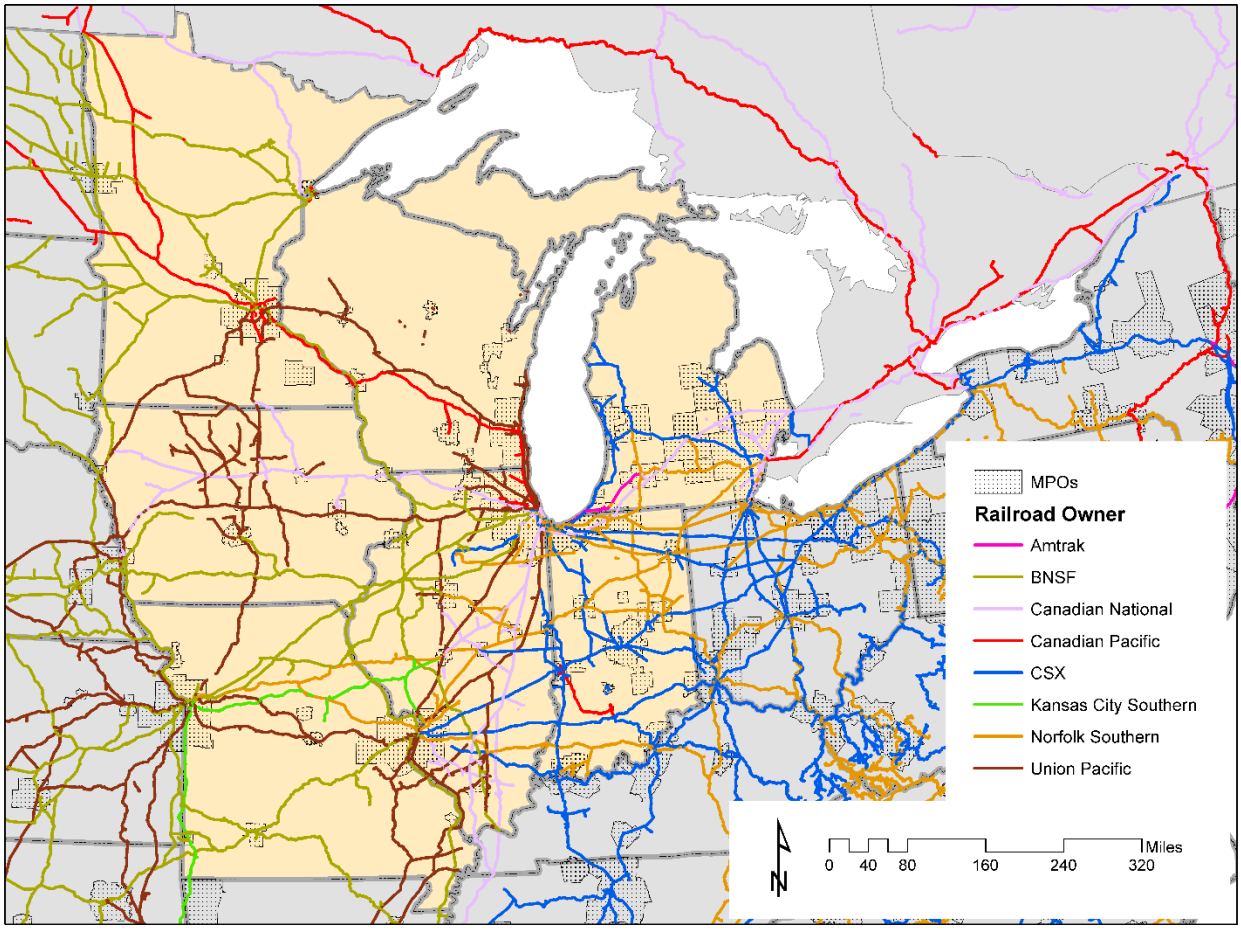
[27] CREATE (2014). Retrieved from http://createprogram.org/about.htm.

[28] Forsythe-Stephens, K. (2015). America's top intermodal facilities. Retrieved from http://www.globaltrademag.com/global-trade-daily/commentary/americas-top-intermodal-facilities.

[29] Mallory, M. (2017). Union Pacific buys 106 acres from CenterPoint for $26 million. Retrieved from http://www.theherald-news.com/2017/06/30/union-pacific-buys-106-acres-from-centerpoint-for-26-million/anx9de4/.

several different railroads. Excluding Illinois, the average number of large rail intermodal terminals per state is just over three, according to the Intermodal Association of North America (IANA).[30]

Figure 9: Class 1 Railroads in the Midwest Chicago Megaregion



Data source: National Transportation Atlas Database of the Bureau of Transportation Statistics (2015; USA) and Natural Resources Canada[31] (Canada)

INLAND WATERWAYS AND PORTS

Inland waterways serve the region, and barges operating on the system (including the Mississippi, Ohio, Illinois, and Missouri Rivers) handle a large portion of the country's bulk commodities, such as grain and coal. The U.S. Marine Transportation System (MTS) consists of the Inland Waterway System (IWS) and deep-water international waterways. The megaregion has extensive access to both systems. Table 4 shows the major ports of the megaregion. The U.S. Great Lakes Navigations System is part of the greater international Great Lakes-St. Lawrence Seaway, an international waterway classified as a deep waterway. Both waterways connect ports in the megaregion to external seaports.[32]

[30] Data from Intermodal Association of North America. Retrieved from http://intermodal.org/resourcecenter/network.php.

[31] Retrieved from http://geogratis.gc.ca/api/en/nrcan-rncan/ess-sst/-/(urn:iso:series)geobase-national-railway-network-nrwn?sort-field=relevance.

[32] Bureau of Transportation Statistics, 2015.

Table 4: Major Ports in the Midwest Chicago Megaregion

Port Name	State	2015 Tonnage (millions)
Chicago	Illinois	15.4
Port of Kaskaskia	Illinois	5.2
Buffington	Indiana	1.3
Burns Waterway Harbor	Indiana	8.0
Gary	Indiana	8.7
Indiana Harbor	Indiana	12.4
Mount Vernon	Indiana	6.1
Alpena	Michigan	2.2
Calcite	Michigan	5.9
Detroit	Michigan	13.0
Drummond Island	Michigan	1.1
Escanaba	Michigan	3.8
Marquette	Michigan	1.0
Monroe	Michigan	2.4
Muskegon	Michigan	1.5
Port Dolomite	Michigan	3.1
Port Inland	Michigan	4.0
Presque Isle	Michigan	7.8
St. Clair	Michigan	7.2
Stoneport	Michigan	6.3
Duluth-Superior	Minnesota	36.5
Silver Bay	Minnesota	5.2
St. Paul	Minnesota	4.6
Two Harbors	Minnesota	16.7
Caruthersville Harbor	Missouri	2.6
Kansas City	Missouri	1.4
Southeast Missouri Port	Missouri	0.8
St. Louis	Missouri	33.6
Green Bay	Wisconsin	2.4
Milwaukee	Wisconsin	3.1

Data Source: National Transportation Atlas Database[33]

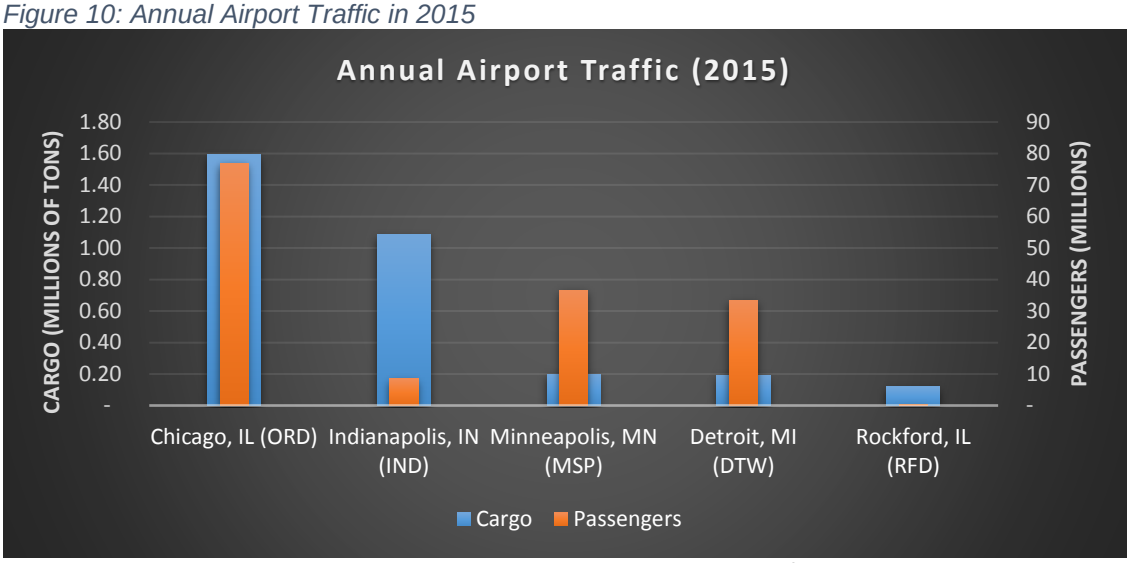
AIRPORTS

The megaregion has several airports serving very large cargo volumes, and even more with substantial passenger traffic. While the weight of goods moved by air is much lower than for surface modes, their overall value is very high since the goods that move by air freight tend to be very time-sensitive or high-value items, like electronics or pharmaceuticals. For instance, the Chicago region processes $55 billion in cargo value via air freight, with an average value per ton that is 62 times greater than by truck and 150 times than by rail.[34] Chicago's O'Hare International Airport (ORD) processes the largest cargo volume of the megaregion's airports. Indianapolis International Airport hosts a major FedEx hub, which gives it a total cargo volume that is nearly two thirds the size of O'Hare and is the eighth busiest nationwide. Minneapolis-St. Paul International Airport (MSP) and Detroit Metropolitan Wayne County Airport (DTW) are the megaregion's third and fourth busiest cargo airports respectively, with Chicago/Rockford International Airport (RFD) as the fifth busiest cargo airport in the megaregion. Figure 9 summarizes the annual airport traffic of those regions.

[33] Retrieved from http://osav-usdot.opendata.arcgis.com/datasets/490e1e06b54b4a5bb1e58523a5d546a7_0.

[34] http://www.cmap.illinois.gov/about/updates/-/asset_publisher/UIMfSLnFfMB6/content/overview-of-freight-flows-into-and-out-of-the-chicago-region.

Figure 10: Annual Airport Traffic in 2015



Data source: Airports Council International – North America (2015)[35]

INFRASTRUCTURE CHALLENGES

A number of infrastructure challenges across modes have been identified.

Congestion: Limited capacity and high demand has contributed to increased and growing congestion in many parts of the megaregion, especially the urban cores where much of the transportation infrastructure converges. The largest regions predictably experience the highest absolute economic costs due to lost time and wasted fuel during traffic jams: the regions around Chicago, Detroit, Minneapolis-St. Paul, and St. Louis stand out for experiencing the highest economic costs due to congestion. However, when congestion is viewed from the perspective of the hours lost by individual auto commuters, the effects of congestion are on a similar scale in many cities around the megaregion. Cities from Ann Arbor, MI to Grand Rapids, MI; Milwaukee, WI; and Indianapolis, IN experience more than 20 annual hours lost by commuters due to congestion (shown in Figure 10). Trucks and freight are stuck in the same congestion.

Rail infrastructure also faces congestion, particularly in the Chicago area where the Class 1 railroads converge. The CREATE partnership among city agencies, state and federal government, and private railroads provides one model for alleviating the rail congestion through a strategic set of projects. CREATE facilitates movement to address and resolve critical bottlenecks whose delays otherwise reverberate throughout the megaregion and into national transportation networks.

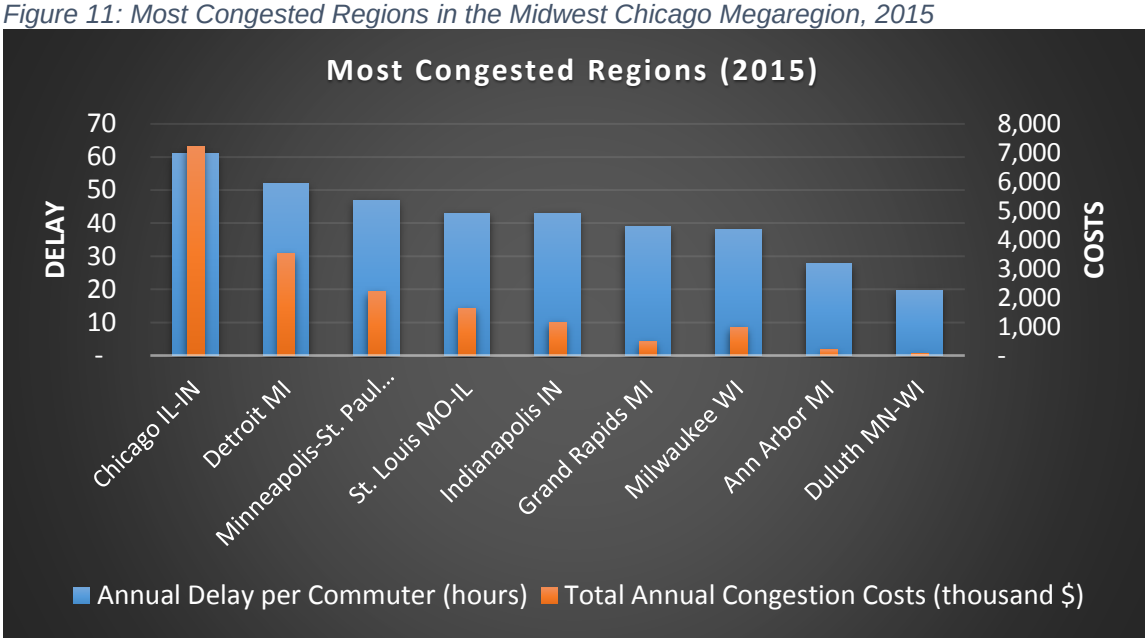
Truck Parking: Many areas of the megaregion see demand for truck parking frequently surpass supply,[36] which interferes with drivers taking mandatory rest or encourages them to stop in undesignated parking areas, such as highway shoulders or ramps. Parking is supplied by a combination of public sources (e.g., rest areas) and private sources (e.g., commercial truck stops). The region is attempting to lessen the truck parking shortage. As previously highlighted, most of the states in the megaregion benefitted from a $25 million TIGER Grant awarded in 2015

[35] Retrieved from http://www.aci-na.org/content/airport-traffic-reports.

[36] MNDOT (2008). Retrieved from http://www.dot.state.mn.us/ofrw/PDF/MN_TrkParkFnlRpt.pdf.

to provide real-time truck parking information.[37] Similarly, the National Coalition on Truck Partnership, an association among US DOT and several trucking and transportation organizations, hosted a Midwest regional meeting in 2016 that sought to identify potential sites (e.g., brownfields and weigh stations) that could serve as parking during peak demand.[38]

Figure 11: Most Congested Regions in the Midwest Chicago Megaregion, 2015



Data source: Texas A&M Transportation Institute (2015)[39]

Maintenance and State of Good Repair: Maintaining infrastructure's state of good repair is a challenge in the Midwest as in the rest of the country, especially as transportation funding does not keep pace with infrastructure age. State of good repair matters not just for operations but also for budgets since systems maintained in a state of good repair achieve the lowest annual costs for maintenance over an extended timeline. Structurally deficient bridges "require significant maintenance, rehabilitation, or replacement."[40] Structurally deficient bridges have received lots of attention due to their sheer number and their location in all parts of the country. The percentage of bridges that are structurally deficient in the Midwest Chicago Megaregion ranges from a low of six percent to a high of 20 percent depending on the state.[41] [42] Each state has 2,000 structurally deficient bridges or more on the National Highway System without even counting bridges on local roads (Figure 11). The megaregion also has a large system of inland waterways and locks that transport bulk freight goods. Similarly, airport facilities requiring maintenance include not just terminals and runways, but also navigation aids, weather reporting tools, lighting, and pavement.[43]

[37] Delong, K. (2015). Retrieved from http://fox6now.com/2015/10/29/wisconsin-part-of-25-million-federal-grant-for-midwest-truck-parking-information-system/.

[38] FHWA (2017). National Coalition on Truck Parking. Retrieved from https://ops.fhwa.dot.gov/publications/fhwahop17026/index.htm#s3.

[39] Retrieved from https://mobility.tamu.edu/ums/congestion-data/.

[40] ASCE (2017). Retrieved from https://www.infrastructurereportcard.org/wp-content/uploads/2017/01/Bridges-Final.pdf.

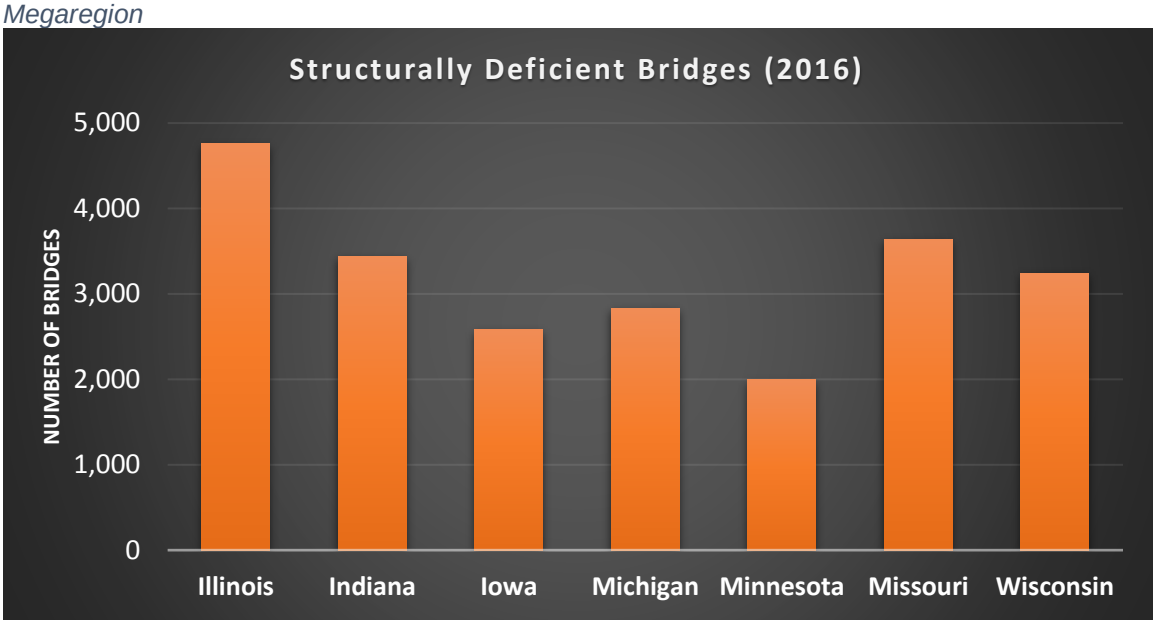
[41] ASCE (2017). Infrastructure Report Card 2017. Retrieved from https://www.infrastructurereportcard.org/state-item/minnesota/.

[42] ASCE (2015). Infrastructure Report Card 2015. Retrieved from https://www.infrastructurereportcard.org/state-item/iowa/.

[43] ASCE (2013). 2013 Report Card for Missouri's Infrastructure. http://www.infrastructurereportcard.org/state-item/missouri/.

Much of this infrastructure will require additional, reliable funding sources to maintain them or upgrade them to new Federal standards.

Figure 12: Structurally Deficient Bridges on National Highway System in the Midwest Chicago Megaregion



Data source: Federal Highway Administration (2016)[44]

Data and Funding: Asset management must be part of the response to the deficiencies in state of good repair, but it also faces its own challenges of having the data, methods, and decision process in place to prevent infrastructure condition from falling below standards, and raising sufficient maintenance funds. Much progress has been made in terms of data management and availability. Beyond the sheer quantity of data and infrastructure, the further challenge will be in funding, especially in places that have had to defer maintenance, during which time costs have compounded. Meeting maintenance needs will be very difficult since many states in the megaregion have insufficient funds to maintain infrastructure when all funding sources are combined.[45]

MEGAREGION CHALLENGES AND OPPORTUNITIES

The megaregion concept provides a new framework for identifying and addressing mobility and economic development challenges and opportunities across traditional, jurisdictional lines. Planning across these boundaries is difficult, but it is receiving renewed attention at state, local, and federal levels. Ideally, megaregions should be defined with a balance of multi-jurisdictional planning and political boundaries along with the economic, environmental, and cultural links within and between regions.

CHALLENGES

Capacity: Constraints on infrastructure capacity are a major challenge facing the Midwest Chicago Megaregion. Growing freight movement is making highways increasingly congested, and

[44] Retrieved from https://www.fhwa.dot.gov/bridge/nbi/no10/defbr16.cfm.

[45] ASCE (2017). 2017 infrastructure report card: State by state. Retrieved from http://www.infrastructurereportcard.org/state-by-state/.

increasing capacity is slow-moving and expensive, be it on highway, railroads, waterways, or airports. Infrastructure capacity constraints and the need to operate and maintain existing infrastructure call for the careful evaluation, inventory, and strategic decision-making that emerge from inter-regional collaboration and coordination.

Funding: Raising sufficient transportation funding is another challenge, especially since federal and state gasoline taxes have normally not kept pace with infrastructure needs, aging infrastructure, inflation, or vehicle fuel economy standards.

OPPORTUNITIES

Intelligent Transportation Systems: One of the areas of opportunity to overcome capacity constraints is intelligent transportation systems (ITS). ITS measures can address many of the problems that come with overcrowded infrastructure, such as safety or emergency vehicle access. Moreover, they may even help make more efficient use of existing infrastructure through such measures as better traffic light sequencing or driver communication, effectively increasing capacity without pouring concrete. It can also help truck drivers find available parking spaces before hours of service regulations require them to stop driving, helping them rest in a safe location. Information systems to help truck drivers find parking is already a point of cooperation among most megaregion states through the 2015 TIGER Grant that they received for that purpose, and which can serve as a launching pad for other truck parking measures.

Inter-state Organizations: Another important opportunity in the megaregion is demonstrated in the work of the Mid-America Freight Coalition (MAFC), which is an organization of ten states, including all seven of those that are the focus of the Midwest Chicago Megaregion workshop that provides leadership for freight planning. The MAFC has taken a leadership role in addressing the requirements of the FAST Act with regards to freight corridors. Specifically, the MAFC has recently completed a survey to determine member states' progress in designating critical freight corridors.[46] The preliminary findings from the survey illustrate that states are in different stages of corridor selection, and have also taken diverging approaches to designation. Greater coordination across the megaregion will can encourage systematic plans to improve freight infrastructure and connectivity.

Rural Transportation: Freight is also needed to transport materials, equipment, people, manufacturing, and agricultural products to and from rural areas. Rural economies are diverse, but often specialize in such industries as natural resources, manufacturing, agriculture, and tourism, all of which require reliable freight movement.[47] State and local agencies are already addressing rural transportation issues, and there are some examples of inter-state coordination on the topic.

High-tech Transportation: Some areas of the Midwest are taking a leading role in testing new transportation technologies. Autonomous vehicles have the potential to dramatically change personal travel patterns and could eventually make truck-borne freight faster by eliminating the need for driver rest and more efficient by reducing required labor. Two areas in the megaregion have been designated as proving grounds for autonomous vehicles by US DOT. One is the Iowa

[46] http://midamericafreight.org/wp-content/uploads/MAFC-CRFC-and-CUFC-Summary-Tables-10172016.pdf.

[47] USDA. How freight transportation supports rural America. Retrieved from https://www.ams.usda.gov/sites/default/files/media/RTIReportChapter3_0.pdf.

City/Cedar Rapids Corridor, sponsored by the University of Iowa, and the other is at the University of Wisconsin – Madison.[48] [49]

Transportation-related Economic Development: The megaregion has a strong track record of setting the conditions to spur transportation-related economic development, even when those conditions are influenced by several different public and private entities. For example, the local governments around the Indianapolis International Airport (IND) have formed IND AeroVision, whose stated goal is "to provide a cooperative process for land use planning and economic development activities" near the airport.[50] The airport's very large cargo presence and centrality in FedEx's network has made the region attract many logistics jobs for different skill types and levels. A similar initiative exists in the St. Louis region, comprising parts of both Missouri and Illinois. The St. Louis Regional Freightway was created in 2016 to promote the industries that need freight in the St. Louis region, such as manufacturing and distribution, to which it provides site selection and other assistance.[51] Another example is the CenterPoint Intermodal Center in Will County, IL, which sits on land previously used for the now-closed Joliet Army Ammunition Plant. Redeveloping the land offered a way to regain jobs lost due to the military closure, so the land's transfer to a development authority and construction of logistics in 2000 and intermodal centers shortly thereafter repurposed the land's place in the regional economy. The intermodal terminals anchor a large and growing set of distribution centers and logistics firms.

Passenger Rail: The Midwest Chicago Megaregion is one of the country's freight rail hubs, and passenger rail is also seeing developments towards high speed rail. An example is the proposed line from Pontiac, MI to Detroit, Ann Arbor, and Battle Creek, among other Michigan cities, and northwest Indiana and Chicago, IL. The line would connect Detroit with Chicago in approximately three and a half hours.[52] Another larger cooperative initiative is the Midwest Interstate Passenger Rail Commission, which was created by inter-state compact in 2000. Specific proposals have changed and continue to evolve in line with economic and political priorities, but the commission's work towards a developed passenger rail network covering nine states, including the seven in the megaregion, has continued.[53] [54]

Megaregion stakeholders recently convened to support the Midwest Regional Rail Planning Study (MWRRP). The study aims to develop a comprehensive vision for integrated regional passenger rail in the Midwest Chicago Megaregion. The study advances planning, procurement, and governance models. The project, led by the Federal Railroad Administration (FRA), began in the spring of 2017 and supports rail planning occurring in twelve states. There have already been several stakeholder workshops, the first of which took place in Chicago, IL in March, 2017.[55]

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[48] US DOT (2017). US Department of Transportation designates 10 automated vehicle proving grounds to encourage testing of new technologies. Retrieved from https://www.transportation.gov/briefing-room/dot1717.

[49] Iowa DOT (2017). Iowa City/Cedar Rapids corridor designated automated vehicle proving ground. Retrieved from http://www.news.iowadot.gov/newsandinfo/2017/01/iowa-citycedar-rapids-corridor-designated-automated-vehicle-proving-ground.html.

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APPENDIX

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